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A Journal of Zoology

IN CONNECTION WITH THE TRING MUSEUM.

EDITED BY

LORD ROTHSCHILD, F.R.S., PH.D.,

DR. ERNST HARTERT, AND DR. K. JORDAN, F.R.S.

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ERRATA.

Pp. 256 to 258 read *Lemmus lemmus* instead of *Lemnus lemnus*.

P. 292, line 1 from below read *Aphropsylla* instead of *Archaeopsylla*.

P. 326, line 11 from below read *Acontia* instead of *Acoutia*.

P. 334, line 16 from below read *Carduelis* instead of *Cardaelis*.

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NOVITATES ZOOLOGICAE

Vol. XXXVIII. DECEMBER 1932. No. 1.

THE LEPIDOPTEROUS GENUS NOBILIA (GEOMETRIDAE SUBFAM. STERRHINAE).

By LOUIS B. PROUT.

FROM the year 1897, when Warren described his *nebulosa* and *obliterata*, until 1922, when Lord Rothschild (*Proc. Ent. Soc. Lond.* 1922, p. cxxxii) commented on the wide divergences in the genitalia of the forms passing as *turbata* Walk., very little attention appears to have been paid to the genus *Nobilia* Walk. It was tacitly assumed that there were four species, and four only; a brief note which I published in 1917 (Nov. Zool. xxiv, p. 307) is, so far as I am aware, the only intermediate reference in the literature, and this pays no attention to the morphology.

Naturally Lord Rothschild's observations excited my interest and a desire to subject the so-called *turbata* forms to a more searching analysis; but until a few months ago my preoccupation with other studies equally or still more urgent has frustrated my intentions. Now that I have carried them out, I take the opportunity to offer a revision of this small but interesting genus. I have to acknowledge with gratitude the ready help of Mr. W. H. T. Tams in making preparations of the genitalia of a number of specimens in the British Museum.

Nobilia Walk. (*List Lep. Ins.* xxiv, p. 1098, 1862), which is clearly one of the outliers of *Scopula* (*Acidaliinae* of Pierce), was treated by Hampson in his "Fauna of British India, Moths," as Sect. II B of *Somatina*, another outlier of the same group. His sectional characterization (iii, p. 465) runs: "Hind tibia of male shortened, and with the tuft from its base short; the first joint of tarsus long, dilated, and with a fold containing a tuft of hair." The genus *Somatina* itself is distinguished in the Key to the Genera of the "Acidaliinae" [Sterrhinae] in the same work by the non-elongate terminal joint of palpus, origin of vein 5 of both wings before the middle of the discocellulars, double areole of forewing and non-stalking of veins 6 and 7 of hindwing. This classification affords a good frame-work, but leaves *Somatina* as a sort of supergenus, of almost world-wide distribution and susceptible of much further subdivision.

The principal characters of *Nobilia* are the following. Palpus with 2nd joint extending somewhat beyond the face, with densely compact scaling, 3rd joint in ♂ short; ♀ with both these joints slightly longer than in ♂. Antenna of ♂ with dense fascicles of long cilia, usually arising from small triangular teeth; intermediate fascicles much shorter and slighter. Antenna of ♀ minutely ciliate. Hindtibia of ♂ short and broad, spurless, with a dense hair-tuft from femoro-

tibial joint, hindtarsus of ♂ with 1st joint densely tufted ; ♀ with 4 spurs. Forewing with apex pointed, termen smooth, rather straight anteriorly, more curved posteriorly ; cell rather less than $\frac{1}{2}$, DC^2 short, DC^3 curved anteriorly (often rather sharply) ; areole double, with SC^2 arising from stalk of SC^{3-5}, R^2 rather extremely placed, M^1 well separate. Hindwing with termen slightly waved, bent (sometimes slightly toothed) at R^3, tornus well expressed ; cell rather short ($\frac{2}{5}$ or less) ; C anastomosing with cell, usually at slightly more than a point, or at first not rapidly diverging, SC^2 about connate, or quite shortly stalked, R^2 scarcely before middle of DC, M^1 separate. Genitalia of ♂ complicated, highly fused, more or less asymmetrical ; uncus slight or obsolete, socii developed, valves specialized into strongly chitinized arms, dorsal and ventral, 8th sternite with an irregular plate, aedoeagus strongly chitinized. Apart from the genitalia, *Nobilia* differs from *Somatina* in shape and facies, more extreme position of R^2 of the forewing, details of hindleg structure, etc. ; from most of the allies (*Craspediopsis*, *Orthoserica*, *Lissoblemma*, *Ignobilia*) also in the non-pectinate ♂ antenna, *Craspediopsis*, which is nearest to it in R^2 and in the angled hindwing, is farthest away in the scaling and pattern and is, according to these criteria, as well as the genitalia, much nearer to *Scopula*.

KEY TO THE SPECIES.

1. Wings beneath not more ochreous than above . .	2
Wings beneath bright ochreous	3
2. Wings above without white subterminal line . .	1. *obliterata* Warr.
Wings above with white subterminal line . . .	2. *cupreata* Pagenst.
3. Forewing with median area concolorous with costal .	4
Forewing with median area concolorous with distal .	7. *strigata* Warr.
4. Prevailing tone cinnamon to hazel ; ♂ socii approximated	3. sp.n. (India).
Prevailing tone darker ; ♂ socii remote . . .	5
5. Larger (48 mm.), rather brighter, aedoeagus large .	5. sp.n. (Celebes).
Smaller, generally darker, aedoeagus normal . .	6
6. Hindwing scarcely toothed at R^3 ; left socius not conspicuously the larger ; Malayan	4. *turbata* Walk.
Hindwing well toothed at R^3 ; left socius conspicuously the larger ; Papuan	6. sp.n.

1. **Nobilia obliterata** Warr.

Nobilia obliterata Warr., *Nov. Zool.* iv. 220 (1897) (Borneo).

The simplest species in markings. Forewing with apex scarcely at all produced, termen scarcely waved, the hindwing with the bend at R^3 weak, the termen very little waved. Rather uniform pinkish cinnamon (nearly 15″ c of Ridgway), with very fine, almost regularly spaced whitish strigulae ; costal edge of forewing dark, not succeeded by the pale or drab area which characterizes all the other species except *cupreata* ; the wings otherwise marked nearly alike, with black cell-dot (that of forewing minute), faint pinkish cinnamon median shade, and fine, sinuous greyish postmedian, somewhat accentuated by blacker teeth outward on the veins. Underside slightly more pinkish, smooth and uniform, only with posterior region pale.

Genitalia of ♂: posterior edge of dorsal plate even less prominent centrally than in No. 3; socii approximated, rather long, the left very decidedly longer than the right, down-curved, valve with the dorsal arm considerably longer than the ventral; ventral plate posteriorly with two broad lobes, somewhat asymmetrical, but lacking the projecting thorn of No. 3.

Borneo and Perak.

2. **Nobilia cupreata** (Pagenst.).

Plutodes cupreata Pagenst., *J. B. Nass. Ver. Nat.* xli. 178 (1888) (Amboina).
Nobilia nebulosa Warr., *Nov. Zool.* iv. 58 (1897) (Amboina).

In shape and colour rather similar to *obliterata*. Hindwing with the bend at R^3 still slighter. Forewing with costal edge less darkened, except at the base, the succeeding area with a suggestion of the pale streak of the rest of the species; cell-spot small and weak; proximal and distal areas—the latter also on hindwing—suffused with a slightly deeper, more coppery shade; both wings with a fine white subterminal line, slightly nearer termen than in *turbata*, some bluish-white admixture beyond it; cell-mark of hindwing nearly as in *turbata*. Underside as in *obliterata*.

Genitalia of ♂: distinguishable at once from all the others by having the dorsal plate produced centrally into a long, fine (pseudo-)uncus; socii remote; plate of 8th sternite with posterior arms long and slender, almost symmetrical. (Examination without dissection.)

Amboina.

This must be a rare species. I have seen only Warren's type ♂, while Pagenstecher also described from a single ♂. Excepting the implications involved in his entirely erroneous generic location, the description by the latter author is good; no doubt Warren's failure to recognize it and his consequent creation of a synonym are attributable to this erroneous location.

3. **Nobilia avellanea** sp.n.

♂♀, 42–45 mm. Closely similar to *turbata*, but distinguishable by the tone of colour and nearly always by the postmedian line of the forewing. Very pale buff, very closely strigulated and reticulated with orange-cinnamon (general aspect vinaceous-cinnamon to hazel), admixture of dark scaling slight.—*Forewing* with posterior patch rather broad, cut off rather suddenly at M, reappearing as a small spot or triangle in cell near the discal lunule; discal lunule not broad, almost always well separated from postmedian line; postmedian forming an acute angle at M^2; extreme terminal area, excepting the costal streak, concolorous with rest of extra-postmedian region.—*Hindwing* with extreme distal area almost concolorous with the rest at least to behind R^2.—Underside orange-buff or slightly deeper, the forewing suffused with flesh-ochre about the fold and narrowly at costa and termen.

Genitalia of ♂: Socii approximated, almost parallel, fairly long, straightish, only slightly asymmetrical. Valves (as in all the examined *Nobilia*) small, highly chitinous, apparently rather strongly fused to the anellus; costal arm slender, curved, ventral arm long, strong, arising from the innerside of the "sacculus." Plate of 8th sternite remarkably asymmetrical, its posterior edge quite irregularly tapering, not two-armed, a strong rose-thorn-shaped prong rising from its left-hand side near the end.

N. India : Darjiling and Assam, the type ♂ from Cherrapunji in coll. Tring Mus. Also known from Burma, Tonkin, Selangor, Penang, Singapore, Sumatra (Korintji) and Borneo.

This is the " Indian " *Nobilia* of Rothschild (*loc. cit.*) and is certainly commoner there than elsewhere, but its range overlaps with that of *turbata*.

4. **Nobilia turbata** Walk.

Nobilia turbata Walk., *List Lep. Ins.* xxiv. 1098 (1862) (Sarawak).
Plutodes strigularia Snell. in Veth, *Midden-Sumatra* iv.: 1 (2) 57 (1880) (Central Sumatra).
Plutodes (Omiza) strigularia Pagenst., *Jahrb. Nass. Ver. Nat.* xli. 178 (1888).
Somatina turbata Hmpsn. (part.), *Faun. Ind. Moths*, iii. 465 (1895).

Walnut brown largely suffused with Hay's brown, the general tone inclining to cameo brown or chocolate.——*Forewing* with posterior patch behind M generally less broad than in *avellanea*, not broken except by M itself, but with its continuation in front thereof more isabelline or light brownish olive, the dark spot near cell-mark wanting or reduced to a dot ; cell-mark rather broad, somewhat reniform, its hinder edge commonly touching the postmedian ; postmedian less acutely angled at M^2 than in *avellanea* ; extreme terminal area generally paler, at least posteriorly.——*Hindwing* with extreme distal border almost concolorous with the rest at apex, but soon (at least from cellule 6) becoming pale.——Underside with the flesh-ochre suffusions broader than in *avellanea*.

Genitalia of ♂ : " Socii " extremely sundered (forming terminal processes to the lateral flanges of the 10th tergite), asymmetrically curved, the right short, the left less so ; valve with costal arm much more highly developed than in *avellanea*, though still slender, ventral arm rather shorter than costal, broader. Plate of 8th sternite with long arms anteriorly (*i.e.* cephalad), also strongly emarginate posteriorly, though here with the arms less long than in No. 2 and No. 6.

E. Pegu, Tenasserim, Malay Peninsula, Sumatra, Java, Borneo and Mindanao.

By the genitalia, there will almost certainly be some differentiable races, but more material and more study will be required before they can be established ; the more striking thing, and the first to demonstrate, is the general homogeneity, together with the great structural difference from *avellanea*. This (*turbata* vera) is the " Malayan " *Nobilia* of Rothschild, *loc. cit.*

It should be added that the discovery that the two closely similar species occur on Sumatra has raised some doubts as to my earlier synonymy, here provisionally retained. Snellen's type, a ♂ from Silago, was described as " rust-brown," which would rather speak for *avellanea*, but the " narrow " grey median area and the confluence of the cell-mark with the distal area would favour *turbata* and it is obviously better, until the type can be studied, to keep the name sunk than to resuscitate it hazardously for the preceding species.

5. **Nobilia erotica** sp.n.

♂, 48 mm. Larger than the other species, more cinnamon than in most *turbata*, though more dark-mixed than *avellanea*, some of the pale strigulae on the outer area of the forewing apparently stronger than in any other *Nobilia*.——*Forewing* with postmedian line almost as acutely angled as in *avellanea*, the discal

lunule similarly removed from it.——*Hindwing* with termen apparently slightly more crenulate than in *turbata*; terminal area between the radials more clouded with the ground-colour than in typical *turbata*.

Genitalia of ♂: similar to those of *turbata*; anal cone (in dried specimen) so strong as to be easily mistaken for an uncus; "socii" nearly symmetrical, decumbent, rather slender and recurved, their edges appreciably serrate; plate of 8th sternite less deeply emarginate at posterior edge than in *turbata*; costal arm of valve strong, strongly curved; aedoeagus much stouter than in the other species.

Celebes: Tondano (Weigall), 1 ♂ in Mus. Tring (unfortunately worn, especially the right wings).

6. **Nobilia aphrodite** sp.n.

♂♀, 42–48 mm. Very variable, sometimes extremely similar to *turbata*, though distinguishable by the shape of the hindwing. The pale parts nearly always with a more decided tinge of brown, the hindwing very generally with an appreciably pale band between the median and postmedian lines, though this is never so clear as the corresponding part of the forewing.——*Forewing* with the cell-spot and often the postmedian line more as in *avellanea* than in *turbata*, the terminal area as in *turbata* or on an average even paler; the dark parts in the ♂ commonly more clouded with black than in *turbata*, in the less clouded forms with the brown seen to be slightly less reddish; ♀ more cinnamon, occasionally even much like *avellanea*.——*Hindwing* termen with well-defined tooth at R^3; terminal pale admixture generally as in *turbata*.

Genitalia of ♂: Dorsal plate (9th tergite) produced to an almost uncus-like point (though less acute and much less long than that of *cupreata*); "socii" widely sundered, the left-hand one the larger and less decumbent; plate of 8th sternite almost H-shaped in the length of the arms both anteriorly and posteriorly. Valve with the arms not very unequal, perhaps more so in thickness than in length, the ventral broad and fairly long.

New Guinea, the type from Upper Aroa River in Mus. Tring; also from Ron, the d'Entrecasteaux, Dampier, Vulcan and apparently throughout the Bismarck Archipelago.

A rather striking aberration, which may possibly prove a separate species, has the wings strongly suffused with violet-grey.

7. **Nobilia strigata** Warr.

Nobilia strigata Warr., *Nov. Zool.* iii. 112 (1896) (Borneo).

In its purplish colour very distinct from all the other species, nearest to the colour of the last-mentioned aberration, but much more freckled and with the median and terminal areas of the forewing scarcely any paler than the rest.——*Forewing* with broad pale costal streak, otherwise not strongly marked, the scheme as in the *turbata* group, but with the postmedian broad and sinuous, the pale subterminal weak or subobsolete; discal lunule moderate.——*Hindwing* with termen rather strongly toothed at R^3, apex slightly less pronounced than in the *turbata* group; almost unicolorous, except for the white, black-tipped cell-mark and the rather weak postmedian.

Genitalia of ♂: Dorsal plate with posterior edge not very convex; left "socius" produced into a slender downward-curved claw. Plate of 8th sternite elongate, roughly parallel-sided, irregularly and asymmetrically tapered posteriorly, but not two-pronged, a rose-thorn-shaped process rising from its right-hand side near the end, preceded anteriorly on the same edge by some small serration. Valves fairly similar to those of *turbata*.

Borneo, the Malay Peninsula and S. Java, apparently pretty constant.

It is a curious coincidence, though it would be rash to give it any special significance, that the two otherwise very dissimilar species *avellanea* and *strigata* should have a very similar "rose-thorn" on the plate of the 8th sternite, in the one case on the left side, in the other on the right.

SOME NEW SPECIES OF THYRIDIDAE.

By R. J. WEST.

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1. **Striglina synethes** sp.n.

♂. *Palpus* sayal brown. *Antenna* minutely ciliate. *Head :* frons and vertex sayal brown. *Thorax :* patagium and tegula sayal brown. *Abdomen* sayal brown, venter light buff tinged with sayal brown. *Pectus* light buff. *Legs* sayal brown, fuscous on tibia and tarsus of foreleg. *Forewing* sayal brown, strigulate with fuscous, a small fuscous spot on discocellulars, an oblique, fuscous line from vein 6 subterminally to inner margin medially. *Hindwing* concolorous with forewing, an oblique line forming continuation of that on forewing ; subterminally, a fuscous spot between veins 5 and 6. *Underside* similar to upperside with fuscous spots more prominent.

Expanse 28 mm. (*tip to tip* 25 mm.).

Holotype ♂ : 28.xii.1912, *paratype* ♂ : 30.vi.1913, Philippine Is., Luzon I., subprov. Benguet, Palali, 2,000 ft.

Nearest ally : *S. divisata* Warr.

2. **Betousa penestica** sp.n.

♀. *Palpus* light buff. *Antenna* minutely ciliate. *Head :* frons and vertex light buff. *Thorax :* patagium and tegula light buff. *Abdomen* light buff tinged with livid brown, venter light buff. *Pectus* and *legs* light buff. *Forewing* glossy, light buff, faintly strigulate with warm blackish brown, a prominent blackish brown spot in apical area. *Hindwing* similar in colour and markings to forewing, but having a tinge of livid brown on inner margin. *Underside* similar to upperside, with markings more strongly defined ; a thickly scaled, warm buff streak through upper half of cell and just beyond on the forewing.

Expanse 21 mm. (*tip to tip* 20 mm.).

Holotype ♀ : 2.vii.1913, Philippine Is., Luzon I., subprov. Benguet, Palali, 2,000 ft.

Nearest ally : *B. subrosealis* Leech.

3. **Brixia hyphaema** sp.n.

♂. *Palpus* light buff. *Antenna* ciliate. *Head :* frons and vertex light buff. *Thorax :* patagium and tegula light buff. *Abdomen* light buff above and beneath. *Pectus* and *legs* light buff. *Forewing* light buff tinged with fuscous on proximal half up to postmedial ; postmedial fascia consisting of a fuscous band obliquely incurved from costa to base of vein 6, straight to vein 2, then inwardly oblique to inner margin ; subterminal fascia consisting of a short fuscous band, obliquely excurved from end of postmedial on costa to termen at vein 5, below this band two wavy streaks, the lower one finishing at tornus. *Hindwing* concolorous with forewing, an oblique fascia across middle of wing forming continuation

of postmedial on forewing. *Underside* similar to upperside, markings more defined.

Expanse 20 mm. (*tip to tip* 19 mm.).

♀. Similar to ♂.

Expanse 23 mm. (*tip to tip* 21 mm.).

Holotype ♂: 14.viii.1896, Japan, Shikoku, prov. Iyo, Komatsu; *allotype* ♀: 8.viii.1895, Kyushu, prov. Satsuma, Kure; *paratypes* 1 ♂: 3.vii.1895, 1 ♀: 3.ix.1895, Kyushu, prov. Osumi, Tarumiza.

Nearest ally: *B. emblicalis* Moore.

4. **Brixia phaula** sp.n.

♂. *Palpus* avellaneous. *Antenna* apparently simple. *Head:* frons and vertex avellaneous. *Thorax:* patagium and tegula avellaneous. *Abdomen* light buff suffused with avellaneous, venter light buff. *Pectus* light buff. *Legs* light buff suffused with avellaneous, tarsi avellaneous, light buff at joints. *Forewing* glossy, light buff covered with a network of avellaneous and fuscous lines, avellaneous along costa; subbasal fascia consisting of an avellaneous line slightly excurved; antemedial fascia consisting of an avellaneous line slightly incurved from costa to median nervure, angled, then slightly incurved to inner margin; postmedial fascia consisting of an inwardly oblique, fuscous line. *Hindwing* concolorous with forewing, antemedial fascia fuscous, inwardly oblique; postmedial fascia obliquely incurved from costa to vein 3 near termen, then inwardly oblique and wavy to inner margin near tornus. *Underside* similar to upperside, with lines in a suffusion of russet.

Expanse 28 mm. (*tip to tip* 26 mm.).

Holotype ♂: 8.iv.1912, Philippine Is., Luzon I., subprov. Benguet, Klondyke, 800 ft.

Nearest ally: *B. ypsilon* Warr.

5. **Brixia erythroides** sp.n.

♂. *Palpus* ochraceous-tawny, suffused with fuscous. *Antenna* minutely ciliate. *Head:* frons and vertex ochraceous-tawny. *Thorax:* patagium and tegula cartridge-buff suffused with fuscous. *Abdomen* cartridge-buff above and beneath, with lateral suffusion of fuscous to Brazil red, anal tuft ochraceous-tawny mixed with Brazil red. *Pectus* cartridge-buff. *Legs* cartridge-buff lightly suffused with fuscous, tarsi suffused with fuscous, cartridge-buff at joints. *Forewing* Brazil red on proximal half diffusing into ochraceous-tawny on distal half, cartridge-buff on costa, a fuscous suffusion from base dividing into two streaks, one along subcosta, the other along median nervure, fringe fuscous edged with cartridge-buff. *Hindwing* Brazil red, fringe fuscous edged with cartridge-buff. *Underside:* fore- and hindwings, ground colour similar to upperside, irrorated with metallic pale blue scales forming transverse bands defined by fuscous, more prominent on hindwing.

Expanse 28 mm. (*tip to tip* 26 mm.).

Holotype ♂: 2.vii.1913; *paratype* ♂: 3.vii.1913, Philippine Is., Luzon I., subprov. Benguet, Palali, 2,000 ft.

Nearest ally: *B. uniformis* Hmpsn.

6. **Brixia plinthochroa** sp.n.

♂. *Palpus* first segment white, second segment army brown mixed with white, third segment army brown. *Antenna* minutely ciliate. *Head:* frons and vertex ferruginous suffused with army brown. *Thorax:* patagium and tegula ferruginous suffused with army brown. *Abdomen* ferruginous lightly suffused with army brown, venter cartridge-buff. *Pectus* cartridge-buff. *Legs* ferruginous suffused with army brown. *Forewing* ferruginous tinged with fuscous, cartridge-buff patches on costa, covered with faint, wavy, fuscous, transverse lines, interneural fuscous-black spots on termen. *Hindwing* similar to forewing, with a prominent fuscous-black spot on discocellulars. *Underside:* forewing ferruginous, with transverse series of army brown patches; a patch of fuscous-black and *whitish* raised scales in cell, three fuscous-black streaks from discocellulars along veins 6, 7, and 8, strigulate with fuscous-black in subterminal area; hindwing light buff with transverse series of ferruginous patches, strigulate with fuscous-black.

Expanse 32 mm. (*tip to tip* 30 mm.).

Holotype ♂: 30.v.1914; *paratypes* 1 ♂: 15.v., 1 ♂: 29.v.1914, Philippine Is., Mindanao I., subprov. Lanao, Kolambugan (plains).

Nearest ally: *B. uniformis* Hmpsn.

7. **Brixia lipara** sp.n.

♂. *Palpus* bay. *Antenna* minutely ciliate. *Head:* frons and vertex ochraceous-buff suffused with bay. *Thorax:* patagium and tegula ochraceous-buff suffused with bay. *Abdomen* ochraceous-buff above and beneath. *Pectus* ochraceous-buff. *Legs* ochraceous-buff suffused with bay. *Forewing* ochraceous-buff with a number of fine, transverse, wavy, bay lines; a streak of white on costa densely irrorated with bay (increasing in width toward apex) in which is a wide, bay, V-shaped mark above discocellulars, the point reaching to below vein 6, a bay patch at apex. *Hindwing* concolorous with forewing, but lightly suffused with bay on distal half. *Underside* similar to upperside, but markings more defined.

Expanse 34 mm. (*tip to tip* 32 mm.).

♀. Similar to ♂.

Expanse 38 mm. (*tip to tip* 36 mm.).

Holotype ♂: 21.xii.1911; *allotype* ♀: 17.iv.1912, Philippine Is., Luzon I., subprov. Benguet, Klondyke, 800 ft.

Nearest ally: *B. atripunctalis* Wlk.

8. **Brixia allocota** sp.n.

♂. *Palpus* white, fuscous above. *Antenna* minutely ciliate. *Head:* frons white, a triangular fuscous patch on upper half, vertex white, fuscous patch in middle. *Thorax:* patagium and tegula white. *Abdomen* white above and beneath. *Pectus* white. *Legs* white, with fuscous patches. *Forewing* glossy, white, a series of fuscous lunules on costa, three fuscous spots on inner margin, the proximal one small, the next a little larger, the distal one, large, oval, and placed obliquely, interneural spots on termen. *Hindwing* concolorous with

forewing, interneural spots on termen, a spot on inner margin at one half. *Underside :* fore- and hindwings, glossy, white.

Expanse 38 mm. (*tip to tip* 36 mm.).

Holotype ♂ : 16.vi.1913, Philippine Is., Luzon I., subprov. Benguet, Baguio, 5,000 ft.

Nearest ally : *B. pudicola* Guen.

9. **Brixia polyterpes** sp.n.

♂. *Palpus* fuscous, white inwardly and at joints. *Antenna* minutely ciliate. *Head :* frons and vertex fuscous tinged with old rose. *Thorax :* patagium fuscous, tegula fuscous, white posteriorly, rest of thorax white. *Abdomen* white above and beneath, some old rose spots laterally. *Pectus* white. *Legs :* coxae, femora and tibiae white with patches of old rose, tarsi fuscous, white at joints. *Forewing* glossy, white, faintly strigulate with old rose, a suffusion of fuscous on proximal third of costa. *Hindwing* glossy, white, subbasal fascia consisting of an oblique old rose line ; postmedial fascia consisting of an old rose band formed by a number of interlaced, old rose lines. *Underside :* forewing white, suffused over the greater part with ochraceous-buff, veins old rose ; irrorated with old rose below costa on proximal half, cell filled with raised scales irrorated with fuscous-black and metallic white ; hindwing similar to upperside.

Expanse 30 mm. (*tip to tip* 28 mm.).

Holotype ♂ : 2.vii.1913, Philippine Is., Luzon I., subprov. Benguet, Palali, 2,000 ft.

Nearest ally : *B. separata* Warr.

ON THE GEOMETRIDAE OF THE EXPEDITION OF CH. ALLUAUD AND R. JEANNEL TO CENTRAL AFRICA.

BY LOUIS B. PROUT.

BY an unfortunate accident, due to a rearrangement of my manuscript, the *Sterrhinae* of the *Traminda* group were dropped out of my report on the above collection (*Mém. Soc. Zool. Fr.* xxix, pp. 375–512, 1932). As this includes a new race of which the Paris Museum has been credited with the type, it is necessary to make good the omission; in any case, it is desirable that the intention of giving a complete survey of the very valuable collection should not be frustrated.

The following are the species in question.

SUBFAM. **STERRHINAE** Meyr.

Chlorerythra rubriplaga extenuata n.subsp.

Type: a ♀ from Tavéta in Mus. Paris.

Smaller than *r. rubriplaga* Warr. (NOV. ZOOL. ii, p. 91, S. Africa), more weakly marked, the forewing beneath with the rosy costal shading more restricted, generally leaving the cell as well as the posterior part of the wing whitish.

KENYA COLONY: Tavéta (alt. 7,500 m.), st. 65, 16–21 March 1912, 1 ♀;—— Serengheti Desert: Landjoro (alt. 900 m.), st. 64, March 1912, 1 ♀; Mbuyuni (alt. 1,150 m.), st. 63, March 1912, 1 ♀.

Also from Kibwezi (Kenya Colony) and Kongwa (Tanganyika Territory) in Mus. Tring. Probably the specimens which I have recorded from Somaliland (*Proc. Zool. Soc. Lond.* 1916, p. 148) likewise belong here, but I cannot now compare them.

Traminda acuta pallida Warr.

T. (?) *pallida* Warr., *Nov. Zool.* vi, p. 296 (1899) (Kenya Colony: Kiboko River).

KENYA COLONY: Tavéta (alt. 750 m.), st. 65, March 1912, 1 ♂, 1 ♀;—— Serengheti Desert: Mbuyuni (alt. 1,150 m.), st. 63, March 1912, 1 ♀;——Voi, September 1909, 1 ♀ (Ch. ALLUAUD).

Known from the White Nile, the Uelle district, Kenya and Tanganyika Territory, I think also from British Somaliland.

Traminda atroviridaria (Mab.).

Thalera atroviridaria Mab., *C.R. Soc. Ent. Belg.* xxiii, p. xxii (1891) ("Madagascar").
Traminda ocellata Warr., *Nov. Zool.* ii, p. 100 (1895) (S. Africa).
Traminda rufa Warr., *Nov. Zool.* iv, p. 65 (1897) (alt.) (Natal: Weenen).

UGANDA: Unyoro, East Albert Nyanza, 1909, 1 ♀ (Ch. ALLUAUD).

Widely distributed; already known from Unyoro, Rhodesia, Transvaal, Natal and Cape Colony. I have never seen it from Madagascar and suspect a

mistake as regards the type locality. The ALLUAUD specimen is of the green form.

Traminda neptunaria (Guen.).

Timandra neptunaria Guen., *Spec. Gen. Lép.* x, p. 3, t. xviii, f. 5 (1858) (Abyssinia).
Guamptoloma neptunaria Warr., *Nov. Zool.* ii, p. 95 (1895).
Traminda neptunaria Swinh., *Tr. Ent. Soc. Lond.* 1904, p. 562 (1904) (Dar-es-Salaam).
Timandra neptunaria Hmpsn., *Proc. Zool. Soc. Lond.* 1910, p. 477 (1910) (N.E. Rhodesia ; Portuguese E. Africa).
Traminda neptunaria Prout, *Proc. Zool. Soc. Lond.* 1916, p. 148 (1916) (British Somaliland).

KENYA COLONY : Serengheti Desert : Landjoro (alt. 900 m.), st. 64, March 1912, 2 ♂♂ ;——Voi (alt. 600 m.), st. 60, March 1912, 1 ♀.

Occurs almost throughout tropical Africa, and even reaches Natal.

THE BIRDS OF TRISTAN DA CUNHA.

BY GREGORY M. MATHEWS, WITH NOTES BY J. G. GORDON.

TRISTAN DA CUNHA is the general name for a group of three small volcanic islands belonging to Great Britain, situated in the South Atlantic; the summit of the largest being in 37° 5′ 50″ South by 12° 16′ 40″ West.

They were discovered in 1506 by the Portuguese admiral, Tristan (or Tristão) da Cunha (1460-1540), who was nominated first Viceroy of Portuguese India in 1504, but owing to temporary blindness was unable to serve; he was, however, placed in command of a fleet which operated on the east coast of Africa. After discovering the islands which now bear his name, he visited Madagascar, Mozambique, Brava and Sokotra.

Dutch vessels brought back reports on the islands in 1643; and in 1656 Van Riebeck, the founder of Cape Town, sent a ship from Table Bay to Tristan to see if it was suitable for a military station. Later in the seventeenth century ships were sent from St. Helena by the English East India Company, with the idea of forming a settlement.

A British naval officer visited the group in 1760 and named Nightingale Island.

John Patten and his crew lived on Tristan from August 1790 to April 1791.

The first permanent inhabitant, however, was Thomas Currie, who landed there in 1810. Later an American named Lambert and another man named Williams made Tristan their home, till they were drowned in May 1812.

During the war between the United States and Great Britain, the islands were largely used as a base by American cruisers, sent to prey on British merchant ships. This and other considerations urged by Lord Charles Somerset, Governor of Cape Colony, caused the islands to be taken possession of as a dependency of the Cape. The formal proclamation of annexation was made on August 14th, 1816.

A military detachment consisting of about fifty men, with a captain, two subalterns and a medical officer, left the Cape in the s.s. *Falmouth* on November 2nd, 1816, with the necessary equipment of cattle and agricultural implements. Owing to adverse winds they did not arrive on Tristan till the 28th of the month. This small garrison was maintained there till November 1817.

At their own request William Glass, a corporal of the Royal Artillery, with his wife and two children and two masons, were left behind, and these began the present settlement. In 1827 five coloured women from St. Helena were induced to migrate to Tristan to become the wives of the five bachelors. Later, coloured women from Cape Colony married residents on the island. Other settlers are of Dutch, Italian and Asiatic origin. The settlement was on the plain on the north-west of the island of Tristan da Cunha.

Over the community Glass (1817–53) ruled in patriarchal fashion. After Glass came Cotton, who was succeeded by Green. They now manage their own affairs without any written laws, the project once entertained of providing them with a formal constitution being deemed unnecessary.

Gough Island, or Diego Alvarez, discovered by the Portuguese in the sixteenth

century, has been claimed as a British possession since the annexation of Tristan. It lies 250 miles S.S.E. of this group. It was called by its present name after Captain Gough, the commander of a British ship which visited it in 1731. The birds of Gough Island were worked up by Clark in the *Ibis* for 1905, p. 247 *et seq.*, and, of course, are not included in this article.

The Tristan group lie in lat. 37° 2′ 48″ South; long. 12° 18′ 20″ West. From the Cape of Good Hope they lie westward 1,550 miles and about one-third farther from Cape Horn, lying nearly on a line drawn between the two capes. They lie 1,320 miles south of St. Helena. In October 1873 the islands were carefully surveyed by the *Challenger*.

The islands rise from the submarine elevation which runs down the middle of the Atlantic. The depth between the islands is in some places over 1,000 fathoms.

TRISTAN, the largest and northernmost island, has an area of 16 sq. miles, is nearly circular in form, about 7 miles in diameter, and has a volcanic cone (7,640 ft.), usually capped with snow, in the centre. Precipitous cliffs, 1,000 to 2,000 ft., rise from the ocean on all sides, except the north-west, where there is an irregular plateau of about 12 sq. miles, 100 ft. above the sea. A stream crosses the northern end of the plateau, falling over the cliff in a fine cascade. The crater of the central cone contains a fresh-water lake about 150 yards in diameter. This and other crater lakes are said never to be frozen over.

INACCESSIBLE ISLAND, the westernmost of the group, is about 20 miles from Tristan. It is quadrilateral in form, the sides being about 2 miles long, with cliffs about 1,000 ft. Its highest point (1,840) is on the west. At the base of the cliffs in some places are narrow fringes of beach.

NIGHTINGALE ISLAND, the smallest and most southern of the group, is 10 miles from Inaccessible Island. Its area is not more than 1 sq. mile. Its coasts, unlike those of the other two islands, are surrounded by low cliffs, from which there is a gentle slope up to two peaks (1,100 ft. and 900 ft. high). There are two small islets, Stoltenhoff (325 ft.), called after two brothers of this name, marooned on Inaccessible Island, and Middle (150 ft.), and several rocks adjacent to the coast.

The rocks of Tristan da Cunha are basalt, porphyritic basalt, dolerite, augite-andesite, palagonite, volcanic tuff and ashes. A block of gneiss in the crater indicates a continental foundation of the island. The caves in Nightingale Island indicate that it has been elevated several feet. On almost all sides the islands are surrounded by a broad belt of kelp (*Macrocystis pyrifera*), through which a boat may approach the rocky shores even in stormy weather. There is no good anchorage in rough weather.

The prevailing winds are westerly. December to March is the fine season. The climate is mild and on the whole healthy, the temperature averaging 68° Fahr. in summer, 55° in winter, sometimes falling to 40°. Rain is frequent; hail and snow fall occasionally on the lower ground. The sky is usually cloudy. The islands have a cold and barren appearance. The tide rises and falls about 4 ft. The greatest known depth of the ocean is midway between the islands of the Tristan group and the mouth of the Rio de la Plata. The bottom was here reached at a depth of 46,236 ft., or 8¾ miles, exceeding by more than 17,000 ft. the height of Mt. Everest.

The first published account of the natural productions of this group appears in the *Trans. Linn. Soc.* (*Lond.*), vol. xii, p. 483 *et seq.*, 1818. The paper was read before the Society on December 16th, 1817, by Captain Dugald Carmichael. This naturalist went with the expedition in November of 1816 and stayed till March 30th, 1817. He explored Tristan and gave an excellent description of the formation, etc. On January 4th, 1818, he, together with Dr. Evers and their servants and a guide, ascended the peak. On their return they encounted four species of Albatross which breed on the island, viz. *Diomedea spadicea*,[1] *exulans*, *chlororynchos* and *fuliginosa*. This author is the first to describe the nesting of *Phoebetria fusca*. He also described the nest of *Thalassarche chlororhynchus*. Of this latter bird he says that " it builds its solitary nest in some sheltered corner, selecting in particular the small drains that draw the water off the land into the ravines. There it runs up its nest to the height of ten or twelve inches, of a cylindrical form, with a small ditch round the base. A curious circumstance with regard to this bird is, that when irritated the feathers of its cheeks are separated so as to display a beautiful stripe of naked orange skin,[2] running from the corners of the mouth towards the back of the head.

" They nourish their young by disgorging the contents of their stomach. We could not help admiring the utter unconsciousness of danger displayed by them on our approach. Their plumage is in the finest order, copious and without the slightest stain. They find great difficulty in getting on wing and must run twenty or thirty yards along the ground with expanded wings before they can get fairly under way."

Of *Phoebetria fusca* he says they are " at this season (January) gregarious, building their nests close to each other. In the area of half an acre I counted upwards of a hundred. They are constructed of mud raised five or six inches, and slightly depressed at the top. At the time we passed, the young birds were more than half grown, and covered with a whitish down. There was something extremely grotesque in the appearance of these birds standing on their respective hillocks motionless like so many statues, until we approached close to them, when they set up the strangest clattering with their beaks, and if we touched them squirted on us a deluge of fœtid oily fluid from the stomach."

He mentioned a species of Thrush, *Turdus guianensis* (= *Nesocichla eremita*), a Bunting, *Emberiza brasiliensis* (= *Nesospiza acunhae*) and a Moor-hen, *Fulica chloropus* (= *Porphyriornis*). These birds have spread over the whole island, and are found on the tableland as well as on the low ground. The *Fulica* conceals itself in the wood, where it is occasionally run down by the dogs ; the others fly amongst the cantonment.

He also mentioned that there are six species of *Procellaria*, but only names *Macronectes giganteus*, *Adamastor cinereus* and *Pachyptila vittata* (*keyteli*).

He increased his list by adding *Catharacta antarctica*, *Sterna vittata* (= varies very little from *S. hirundo*) and *Anous stolidus*, and he brings his total up to fourteen by the inclusion of *Aptenodytes chrysocoma* (= *Eudyptes cristatus moseleyi*).

Thus a list of the birds of Tristan containing fourteen species was started in 1818.

[1] Can *spadicea* be meant for *melanophris* ?

[2] At the Natural History Museum on the 29th April, Mr. E. F. Stead, of New Zealand, told me that this exposed orange skin was a continuation of the gape, and that these birds could open their bill as wide as at an angle of 90 degrees.

The *Challenger* surveyed the group in 1873, and the birds collected then and during the famous cruise were worked up by Sclater, in the *Proc. Zool. Soc. Lond.* for 1878, and this was again printed and many birds figured in part viii, *Report on the Birds of the Challenger*, 1881.

The two land birds depicted are *Nesocichla eremita*, pl. xxiii, and a figure of the bill, foot and wing given on p. 111; and *Nesospiza acunhae*, on pl. xxiv, and a cut of the head, foot and wing given on p. 112.

In the *Proc. Zool. Soc. Lond.* 1861, p. 260, pl. xxx, Sclater had added the Tristan coot, *Gallinula nesiotis*.

To the list of fourteen the *Gallinula* was added, and *Megalopterus* (as *Anous melanogenys*), *Pelagodroma marina* and *Oestrelata mollis*, making now a total of eighteen.

The only Penguin from Tristan was figured on pl. xxx and worked up on p. 128.

Moseley, *Notes by a Naturalist*, 1892, p. 115, adds that *Daption capensis* and *Macronectes* breed on Tristan, and that *Procellaria glacialoides* was also obtained (= *Priocella antarctica*). Total twenty.

From Inaccessible Island, Moseley writes of *Eudyptes*: "All night the penguins were to be heard screaming on shore and about the ship, and as parties of them passed by, they left vivid phosphorescent tracks behind them as they dived through the water alongside."

He comments on the action of these birds in the water: "they showed black above and white beneath, and came along in a shoal of fifty or more from seawards towards the shore at a rapid pace, by a series of successive leaps out of the water, and splashing into it again, describing short curves in the air, taking headers out of the water and headers into it again, splash, splash went this marvellous shoal of animals, till they went splash through the surf on to the black stony beach and there struggled and jumped up amongst the boulders and revealed themselves as wet and dripping penguins.

"In penguin rookeries the grass covers wide tracts with a dense growth like that of a field of standing corn, but denser and higher, the grass reaching high over one's head. The millions of penguins sheltering and nesting amongst the grass saturate the soil on which it grows with the strongest manure, and the grass, thus stimulated, grows high and thick and shelters the birds from wind, rain and enemies, such as the predatory gulls.

"The sulphur plumes lie close to the head when the bird is swimming or diving, but they are erected when it is on shore, and seem then almost by their varied posture to be used in the expression of emotion, such as inquisitiveness and anger.

"The bill is bright red and very strong and sharp at the point; the iris is also red. The iris is remarkably sensitive to light; they feed at sea at night as well as in the daytime.

"Most of the droves of penguins make for one landing-place, where the beach was covered with a coating of dirt from their feet, forming a broad track, leading to a lane in the tall grass about a yard wide at the bottom, and quite bare, with a smoothly beaten black roadway; this was the entrance to the main street of this part of the 'rookery.'

"Other smaller roads led at intervals into the rookery to the nests near its border, but the main street was used by the majority of birds. It is called 'rock-

hopper,' from its curious mode of progression. The birds hop from rock to rock with both feet placed together.

"Naturally going through this horde of nesting birds was very difficult, as owing to the high grass one cannot see far and the 'roads' join and bifurcate in all directions. The stench is overpowering and the yelling of the birds perfectly terrifying. The nests are placed so thickly together that you cannot help treading on eggs and young birds at almost every step.

"A parent bird sits on each nest with its sharp beak erect and open ready to bite, yelling savagely 'eaa-caa-urr-urr,' its red eye gleaming and its plumes at half-cock, and quivering with rage. No sooner are your legs within reach than they are furiously bitten, often by two or three birds at once. Naturally your progress is slow and painful. The air is close in the rookery and the sun hot above.

"These penguins make a nest which is simply a shallow depression in the black dirt, seantily lined with a few bits of grass or not lined at all.

"They lay two greenish-white eggs, and both male and female incubate, in October, when eggs and young are found. The breeding season is probably September to November.

"One of the most remarkable facts about the penguins is that they are migratory; they leave Inaccessible Island in the middle of April after moulting, and return, the males in the last week in July, the females about August 12th."

Moseley, loc. cit., on p. 105, from Inaccessible Island comments on the extreme tameness of the Thrush (*Nesocichla*) and the Finch (*Nesospiza*). The Thrushes could be knocked over with a stick, but they were not so tame as those on Tristan. The Finch seems to be extinct on Tristan.

Of the *Porphyriornis* on Inaccessible Island, he says that it is much smaller than the Tristan form, with finer legs and a longer beak. This is true, as the bird is *Atlantisia rogersi* Lowe.

"On this island also the noddies, *Megalopterus*, were sitting on the tree-tops with the thrushes. These noddies breed also in St. Paul's Rocks in the Atlantic in August, when young and eggs were found. The nests were made of green seaweed (*Caulerpa clavifera*), which grows on the bottom in the bay and around the rocks, and which, getting loosened by the surf, floats and is picked up by the birds on the surface. The weed is cemented together by the birds' dung, and the nests, having been used for ages, are now solid masses, with a circular platform at the summit, beneath which hang down a number of tails of dried seaweed. The older nests project from the cliffs on the sheltered side of the rocks, like brackets, having been originally commenced, as may be seen by the complete graduations existing, by a pair of birds laying an egg (always single) on a small projecting ledge of rock and adding a few stalks of weed.

"It is only the stronger and more vigorous noddies that are able to occupy and hold possession of a nest of this description.

"Prions and other sea birds have riddled the peaty ground underneath the trees in the Phylica wood in all directions with their holes. The burrows are about the size of large rats' holes and they traverse the ground everywhere, twisting and turning and undermining the ground, so that it gives way at almost every step."

Still on Inaccessible Island he says that *Catharacta antarctica* were plentiful. "These predatory gulls were quarrelling and fighting over the dead bodies of

penguins. They quarter the ground when hunting, and when there is a kill assemble in numbers in the same curious way as vultures. They steal eggs, but their chief food is the prions, which they sometimes even draw from their burrows.

"On Nightingale Island the penguins were nesting in the tall grass, very much in the same way as those on Inaccessible Island. This island is the only one where there are caves; these are so numerous as to form a striking feature.

"Here the Yellow-billed Mollymawk (*chlororhynchus*) made numerous nests amid the thousands of penguins' nests in the long grass. The ground of the rookery is bored in all directions by the holes of prions and petrels, which thus live under the penguins. Their holes are not so numerous in the rookery at Inaccessible Island as here. The holes add immensely to the difficulties of traversing a rookery, since when the ground gives way a fall into the black filthy mud amongst a host of furious birds, which have then full chance at one's eyes and face, is far from pleasant. One or two skuas also nested in the rookery. Truly a medley of birds. The skuas lay two eggs. There are about 400,000 penguins on Nightingale Island."

Wilkins [4] says that he collected between May 28th and June 1st, 1922, the eggs of *Thalassarche chlorhynchus*, *Ardenna gravis*, *Eudyptes cristatus* and *Catharacta antarctica*. He also reports that *Diomedea exulans*, which used to breed on Tristan, is now only rarely found on Inaccessible Island. *Phoebetria fusca* nests in August and young birds leave the nest in April. *P. palpebrata* were hatched on January 15th at South Georgia.

Thalassarche chlororhynchus nests in August; young leave the nest in April. *T. chrysostoma* were hatched on January 1st, at South Georgia.

Pterodroma macroptera moults in May and lays in July.

Pterodroma brevirostris ? lays in November.

Pachyptila vittata keyteli lays in September.

Catharacta antarctica lays in September.

Sterna vittata lays in November.

Anous stolidus arrives in September and lays in November, but goes away for the winter.

Eudyptes cristatus moults in March and leaves the island and comes again in August and lays its eggs in September.

Lowe [5] describes some new forms from this group, and on p. 522 gives a drawing of the head and wings of two *Nesospiza*. He also discussed the genus *Nesocichla* and gives text figures on pp. 526–7.

Apart from the foregoing works, the following should be consulted, as they bear upon the ornithology of the South Atlantic.

1. Clarke, *Ibis*, 1905 (April), pp. 247–68. "On the Birds of Gough Island."
2. Clarke, *Ibis*, 1906 (January), pp. 145–87. "On the Birds of the South Orkney Islands."
3. Clarke, *Ibis*, 1907 (April), pp. 325–49. "On the Birds of the Weddell and Adjacent Seas, Antarctic Ocean."
4. Wilkins, *Ibis*, 1923 (April), pp. 474–511. "Report on the Birds collected during the Voyage of the *Quest*" (pp. 495–501).
5. Lowe, *Ibis*, 1923 (April), pp. 511–29. "Notes on Some Land Birds of the Tristan da Cunha Group, collected by the *Quest* Expedition" (pp. 519–29).

6. Lowe, *Ibis*, 1928 (January), pp. 99–131. "A monograph on *Atlantisia rogersi*: The Flightless Tristan Rail."
7. Lowe and Kinnear, British Antarctic (*Terra Nova*) Expedition, 1910. *Zoology*, vol. iv, no. 5, pp. 103–93, "Birds, September 1930."
8. Stenhouse, *Scottish Naturalis*, 1924, pp. 93–6, "Notes on Rare Land Birds from Tristan d' Acunha in the Royal Scottish Museum, *Nesospiza acunhae*."
9. Oliver, *New Zealand Birds*, 1930.
10. Kinghorn and Cayley, *Emu*, vol. xxii, pp. 81–96, October 1922.
11. Bent, *Life Histories, North American Petrels, etc.*, 1922.
12. Rogers, *The Lonely Island*, 1926.

The following is a list of the birds made by P. C. Keytel on Tristan da Cunha, kindly sent me from the South African Museum by the Director, Dr. E. L. Gill. They are now in the South African Museum.

Eudyptes cristatus (with eggs).
Diomedea exulans (with egg).
Thalassarche chlororhynchus (with egg and photograph of bird on nest).
Phoebetria fusca (with egg).
Pterodroma macroptera.
Ardenna gravis.
Pachyptila vittatus (broad-billed) (with egg).
Catharacta antarctica (with egg).
Sterna vittata (with eggs), adult and juvenile.
Anous stolidus (with egg).
Porphyriornis nesiotis, adult and juvenile.
Nesospiza acunhae.
Nesocichla eremita, adult and juvenile.
Atlantisia rogersi—not in Keytel's collection, but two specimens obtained by South African Museum in 1932. Also *Fregettornis grallaria*.

Note.—I hear that about fifteen specimens of this Rail have been sent to different museums in America. It is sincerely to be hoped that the bird will not be exterminated by any evil-disposed person for the sake of money.

UP-TO-DATE LIST OF THE BIRDS OF TRISTAN DA CUNHA.

The page numbers represent the page in *Syst. Av. Aethiop.* Sclater.

P. 3. *†*Eudyptes cristatus moseleyi*—Rock Hopper Penguin.
P. 5. *Oceanites oceanica oceanica*—The Yellow-webbed Storm Petrel.
P. 6. **Pelagodroma marina marina*—The White-faced Storm Petrel.
P. 6. ? [*Garrodia nereis chubbi*—Falkland Island Grey Storm Petrel.]
P. 7. ? [*Fregetta melanogaster*—Black-bellied Storm Petrel.]
*†*Fregettornis grallaria*—White-fringed Storm Petrel.
Fregettornis melanoleuca—Black and White Storm Petrel.
P. 8. *†*Puffinus assimilis elegans*—Gough Island Shearwater.
P. 9. *†*Ardenna gravis*—Greater Shearwater.
P. 10. *Priocella antarctica*—Silver-grey Petrel.
*?† *Adamastor cinereus*—Great Grey Shearwater.

* Tristan breeding birds. † Gordon collection.

P. 11. ? [*Procellaria aequinoctialis*—Cape Hen.]
*†*Pterodroma macroptera*—Long-winged Petrel.
*†*Pterodroma incerta*—Atlantic Petrel.
†*Pterodroma externa*—Juan Fernandez Petrel.
*†*Pterodroma mollis*—Soft-plumaged Petrel.
P. 12. ? [*Pterodroma brevirostris*—Kerguelen Petrel.]
P. 13. *Daption capensis*—Cape Pigeon.
*†*Pachyptila vittata keyteli*—Tristan Broad-billed Prion.
P. 14. *Macronectes giganteus*—Giant Petrel.
P. 15. **Pelecanoides urinatrix dacunhae*—Tristan Diving Petrel.
*†*Diomedea exulans exulans*—Wandering Albatross.
P. 16. †*Thalassarche melanophris*—Black-browed Mollymawk.
*†*Thalassarche chlororhynchus*—Yellow-nosed Mollymawk.
P. 17. *†*Phoebetria fusca*—Sooty Albatross.
P. 104. *†*Atlantisia rogersi*—Tristan Rail.
P. 109. **Porphyriornis nesiotis*—Tristan Coot (extinct ?).
P. 144. *?† *Larus dominicanus*—Southern Black-backed Gull.
P. 147. *†*Catharacta antarctica*—Antarctic Skua.
P. 149. *†*Sterna vittata*—Kerguelen Tern.
P. 154. *†*Anous stolidus*—Atlantic Noddy.
P. 155. **Megalopterus minutus atlanticus*—Atlantic White-capped Noddy.
P. 447. *†*Nesocichla eremita eremita*—Tristan Thrush.
*†*Nesocichla eremita gordoni*—Inaccessible Island Thrush.
P. 833. **Nesospiza acunhae acunhae*—Tristan and Inaccessible Island Bunting.
**Nesospiza acunhae questi*—Nightingale Island Bunting.
**Nesospiza wilkinsi*—Large-billed Bunting (Nightingale Island).
P. 844. †*Ionornis martinica*—American Purple Gallinule.
Total thirty-six, of which twenty-two at least breed in the group.

In the following compilation I have endeavoured to bring together the main items of interest in the life history of those birds which have been recorded from this group of islands, together with the history of the discovery of the islands and subsequent occupation, taken from the published accounts.

Mr. Jack G. Gordon's notes are in square brackets.

[At all times, but especially when the potato crop fails, and supplies run low, the islanders depend largely on the various sea-birds and their eggs for food. All the species frequenting the islands, with the exception of Skuas and Penguins, are eaten, as are all eggs, those of the Penguin and Yellow-nosed Albatross easily outnumbering all the rest put together. Unfortunately the people are careless, and take no thought or care to conserve this very valuable source of supply, so several species have become scarce or have left the island. Both Mrs. Barrow and Mrs. Rogers give several instances of wholesale destruction, no less than 6,939 "Mollyhawks" being killed during March and April in one year "and 25,200 Penguins' eggs being taken in one season." On the 12th January, 1909, Mrs. Barrow writes: "Six men who had been to Inaccessible returned, and I am sorry to say that one of them purposely set fire to the tussac grass, which has been burning for three days. The fire can be seen from here 25 miles away. The men say that thousands of birds must have been destroyed,

* Tristan breeding birds. † Gordon collection.

as it is their nesting time. It is horrible to think of." She adds that it was still burning a month later! Acts like this should be severely punished. At that time several men of a bad type came from Cape Town and caused much trouble in the generally peaceful community.

Also a great many dogs were kept, some families having as many as four, most of which had to find their own living, and the birds suffered in consequence. But this has been remedied. Until 1882 there were no rats on Tristan, but that year half a dozen managed to get ashore from the wreck of the *Henry B. Page*. Mr. Dodson, the missionary then, urged the men to kill them, pointing out what trouble they would cause. But they thought a few rats wouldn't hurt, and did nothing! In later years these rats wrought great havoc among the crops, and were probably the cause of all the land birds becoming extinct on the island.

Seemingly there are no rats yet on either Inaccessible or Nightingale Islands, and long may it continue so.

I had wished to get into touch with Tristan, and learn something of its birds. But it is well named "the lonely isle," for my first letter, written in 1910 and addressed simply to "the Chief man, Tristan da Cunha, S. Atlantic" took five years to get there! and three more for an answer to reach me! There were then letters from three "Chiefmen" and one "Chiefwoman." I have since received occasionally rough skins, and eggs (mostly broken), but many seem to go astray on the long journey. All are of great interest, several being first records for the group. The chief difficulty has been to get any data with the specimens. Though I have sent out scores of data cards, some already written up as guides, it seems impossible for them to do it correctly, and some of their efforts are very quaint. Here are some samples. "Mollyhawk egg, from Franks Hill, North West Point of Tristan da Cunha. We name this hill after a man by the name of Frank who got lost on the mountain and he made his house on the mountain and slept there, and we call it Franks Hill." Nothing about the bird, nest or anything! "The Peho egg, a blackbird with yellow on the beak. This bird make the nest near the edge of cliffs and it is very dangerous to get at their nests at times." This is a bit better. "These 6 eggs shell are call the '*Seahen*,' we got them on the 14th of October 1920, and my boy had to go 9 miles for them and my boy's name is William and he is thirteen years of age and we got them the place we call Sandypoint." Too much William and not "Seahen" about this effort!

Almost all the skins are now in the Royal Scottish Museum, Edinburgh, and were verified by W. Eagle Clarke and Surgeon-Admiral T. H. Stenhouse. Gregory M. Mathews has also examined some of them.

I am greatly indebted to the books on the island, by Mrs. Barrow and Mrs. Rogers, for much information regarding the birds and islands.]

1. **EUDYPTES CRISTATUS MOSELEYI** M. & I. **The Rock-hopper Penguin (Penguin).**[1]

Eudyptes serresianus moseleyi Mathews and Iredale, *Man. Birds Austr.* vol. i, p. 11, March 9th, 1921. Inaccessible Island, Tristan da Cunha Group.

This species has a very wide range, extending from Prince Edward, Marion, Crozets, Kerguelen and Gough Islands: Tristan da Cunha to the Austro-New Zealand Region.

[1] The second name given in a few instances is the name by which the Tristan islanders call the bird.

The typical form is from the Falkland Islands (figured in *Cim. Phys.* pl. 49). It is represented by this subspecies in the Tristan Group, which is figured in *Voy. Chall.* pl. 30, 1881, and on Kerguelen by *interjectus*; while the Austro-New Zealand subspecies must be called *filholi*, which I have figured and described in my *Birds of Norfolk and Lord Howe Islands*, pl. 32, 1928. The older-used name was *chrysocome*, but this is now considered indeterminable by up-to-date workers.

It spends a lot of its time at sea, only coming ashore to breed. It moults in March, then goes to sea in the middle of April, returning again in July or August. Mates, and commences nesting in September. In October eggs and young are found, and by November all or most of the eggs have been hatched.

The Austro-New Zealand form leaves Macquarie Island early in May, after moulting in April, and returns about the middle of October, and its breeding season is October to December.

They nest in colonies, in the long grass, making a nest which is just a depression, sometimes lined.

The eggs consist of two to the clutch, and are bluish white to greenish white, ovoid in shape and with a smooth surface, but pitted, and measure 65·5 by 56·5 mm. (Macquarie Island) and 70 by 57·5 (Campbell Island) (Oliver 9).

The breeding season is September to November.

[They are very numerous in the group, and at Tristan there are large rookeries, at "Stony Beach," "Trypot," "Seal Bay," "Sandy Point," etc., where they nest close to the sea, as a rule.

Last year young come in to moult in December, and Mrs. Barrow writes in January 1908: "The poor penguins that land on this shore (i.e. near the settlement) have but a short life, as the dogs hunt them out at once. While moulting they need no other food than that which Nature has provided in a store of oil from which they can draw. They hide in holes, small caves, etc., during the time they are helpless."

The eggs are a great asset in hard times, but Mrs. Rogers states that the birds themselves are not eaten by the people. On the 24th September, 1906, Mrs. Barrow writes: "The men again went to Sandy Point for eggs. I wish they did not take them in such a wholesale way. They brought back shoals!" While on the 19th September, 1907, she says: "The men went to the Penguin rookery to-day. Each man carries a box on his back holding 150 eggs, no light load! When the birds are up for laying, the pairs keep together, the hen on the nest, and the cock standing by. They make a tremendous noise day and night. While in 1924 Mrs. Rogers records that Penguin eggs are used in great quantities in September and October, and that 25,200 were said to have been used that year, 7,200 being collected by the boats in a day round the island. While on the 21st September, 1925, 5,000 were collected. Little, if any, nest is made, and two eggs are the usual clutch, but they will lay several if the first are taken when fresh. The eggs are white, with a tinge of blue, and rather spherical in shape, and are often much stained, when the rookery is in peaty or damp ground. They vary greatly in size. My two largest sets taken 14/9/17 and 8/9/20 measure 72 × 57·5 and 71·5 × 55·5, and 72·5 × 57 and 70 × 55. While the smallest taken 8/9/20 is only 58·5 × 48 and 57·5 × 47. One egg taken 5/9/20 and "first egg the Penguin lay" measures 63·5 × 44 and is unlike a Penguin's in shape, being elongate and pointed.

Of Nightingale Island the Rev. H. M. Rogers says, 31st January, 1924: "The

1,000's of Penguins in their rookeries are a truly remarkable sight. Though moulting, they were fat and lively, but we noticed many dead young, and numbers of spoiled eggs. They nest right up, far ashore, here in the Tussac, which grows taller than a man. Nothing molests them—men, rats, cats and dogs are all absent." There are large rookeries, too, on the small adjacent islets—"Alec's," "White," "Stoltenhoff," and "Old Man." I have received several skins at various times.]

GARRODIA NEREIS CHUBBI Mathews. **Falkland Grey-backed Storm Petrel.**

This bird flies the southern oceans. It is figured by Godman in his Monograph, pl. 14, 1907. It is represented in the South Indian Ocean by the Kerguelen form, *couesi*, and the typical form occurs in the South Pacific Ocean in the Austro-New Zealand region. This latter bird is figured by Gould, vol. vii, pl. 64, 1845, and by myself in vol. ii, pl. 69, 1912.

PELAGODROMA MARINA MARINA (Lath.). **White-faced Storm Petrel.**

This bird was originally described from the mouth of the Rio de la Plata, where it was collected, and a drawing made by Sidney Parkinson. It breeds on Nightingale Island.

There are four or five forms, the above being the typical subspecies; it is represented by *hypoleuca* breeding on the Great Salvage, Canary and Cape Verde Islands. The Australian form is *dulciae*, figured in my *Birds Austr.*, vol. ii, pl. 70, 1912, and the New Zealand bird *maoriana*, figured by Godman in his Monograph, pl. 15, 1907.

The nest is placed at the end of a burrow.

The clutch is one; variable in size and shape. Sometimes pure white, at others the larger end is thickly speckled with minute rusty spots and others sparsely all over. Elongately oval to subrotundately oval. The measurements are 35–41 mm. × 25–28.

Bent [11] gives the average of the typical form as 36·20 × 22·03.

Breeding season November to January.

[In the *Systema Aethiopica*, vol. I, 1924, this petrel is described as breeding at Nightingale Island. While Alexander's *Birds of the Ocean*, 1928, also records it from Tristan. I have not received any Tristan skins, nor have I had any information from the natives regarding this kind. But they easily overlook species at all similar.

Eggs of the typical form are lacking in my collection, but two from Mud Island, Victoria, of *P. m. dulciae*, the Australian form, measure 38·9 × 25 and 37 × 27·5. They are rather oval, and white with fine pale-red dots. Nest in a small burrow.]

OCEANITES OCEANICUS OCEANICUS (Kuhl.). **Yellow-webbed Storm Petrel.**

The bird breeds on Kerguelen and other islands in the Southern Ocean, such as the South Orkneys. Wanders north to Africa and Queensland in Australia. Europe.

The typical form was collected off the mouth of the Rio de la Plata, in South America. It was figured by Gould in vol. vii, pl. 65, 1846; Godman, in his

Monograph, pl. 12, 1907, and I figured the Austro-New Zealand subspecies, in my *Birds of Australia*, vol. ii, pl. 68, 1912.

It nests (Clarke 2) on Laurie Island, in the South Orkneys, in the cliffs. A photo is given on pl. x, where on December 11th the first egg was obtained.

"There was no attempt at nest making; the egg was simply laid in a hollow in the earth in narrow clefts and fissures in the face of the cliff, under boulders and sometimes under stones, on the screes sloping from the foot of the precipice at heights varying from 20 to 300 ft. above sea-level. Sometimes the egg was placed very far in. The searcher could hear the low hollow whistle uttered every few seconds by the sitting bird. When caught on the egg the birds brought up a reddish fluid, which issued both from the mouth and nostrils.

"In addition to the low whistle, these Petrels had a harsh screaming chuckle. These noises they kept up almost continuously after dark, especially on still nights.

"They appear to return year after year to the same nesting places, for both eggs and dead young birds of previous seasons were numerous in the tenanted holes containing the fresh egg.

"The eggs are elongated ovals, dull white, peppered with tiny dots of reddish-brown and underlying ones of lilac, mostly accumulated round one end, but occasionally sprinkled all over the surface. Eight eggs average 33·7 × 24 mm. The largest 36 × 24, and the smallest 32 × 23. Bent (11) gives the average as 32·2 × 23·2."

The Austro-New Zealand from *exasperatus* breeds at Cape Adare in January, where it forms a tunnel, at the end of which is an enlarged chamber, lined with feathers.

The clutch is one, elongated, dull white, sparingly dotted with reddish spots, and sometimes these spots form a ring round the larger end. They measure 33 × 23 mm.

Lowe and Kinnear (7) give a text-figure and say that these birds fly very close to and along the contour of every little wave, with outspread wings, very seldom flapping, but every now and again dropping the feet to touch the water and then picking up some small crustacean (?) from the surface. The feet, when the bird is on the wing, project about three-quarters of an inch beyond the tail, giving the tail a cuneate form which it does not really possess, the tail being cut across more or less square. Dr. Wilson was impressed with the resemblance of this Petrel to a house martin.

[This species was observed near the group by the *Quest* Expedition in May 1922. But on questioning the people they were told that this Petrel was rarely seen at the islands.

I have only a single egg taken at Jason Island, Falkland Isles, on the 12th December, 1928, nest a few feathers under a boulder. It measures 34 × 23, and is dull white, with a ring of tiny reddish spots.]

FREGETTORNIS GRALLARIA TRISTANENSIS. The Atlantic White-fringed Storm Petrel (or Storm Pigeon).

Mathews, *Bull. B.O.C.* lii, p. 123, April 5th, 1932. Inaccessible Island.

This bird nests on Inaccessible Island, as reported by the Islanders, and this is the first record for the Atlantic Ocean. This and *Pterodroma externa tristani*

occur on the Tristan Group. The question arises, what is the connection between Juan Fernandez Island in the Eastern Pacific and the Tristan Group ?

The species is figured as *Fregetta grallaria* in my *Birds of Australia*, vol. ii, pl. 72, 1912, and in my *Birds of Norfolk and Lord Howe Islands*, pls. 6 and 10, 1928.

In the *American Museum Novitates* no. 124, July 22nd, 1924, Dr. Robert C. Murphy proved that the type of *grallaria* did not come from Australia and restricted the type locality to the breeding form on Juan Fernandez Island. Now *grallaria* occurs commonly in the South Pacific Ocean, between Australia and South America, and we have three forms there. Wing of typical birds 153·9 mm. ; *innominatus*, 160·8 ; *titan*, 181·6. In the same publication no. 322, July 14th, 1928, p. 4, Murphy named his large form, *titan*, when he had 17 males and 10 females ; he found the females slightly exceed the males in size ; in 63 skins measured from Juan Fernandez, the females also were slightly larger.

It was the finding of this species in the Atlantic, so near the type locality of *leucogaster*, that caused all the workers to mix up the two forms. A bird with white fringes to the feathers of the uppersurface and an all-white undersurface was to most men typical *leucogaster* ; hence they called *leucogaster* short-toed, as this *tristanensis* is. Some workers speak of the short-toed *leucogaster* (= *tristanensis*) and the long-toed.

Writing of the typical form of *grallaria*, Bent (11), under *leucogastris*, quotes Beck as saying that it breeds on Santa Clara Island, which lies about ten miles from the west end of Masatierra Island. "The nests were usually in rock piles under a good-sized rock. The few nests examined were lined with straws or a few twigs from bushes. One nest with its downy occupant was plainly visible without moving the overshadowing rock. On January 19th, 1914, the date of my visit, I found more nests with young birds than with eggs. As with other species of petrels, the downy young is left alone during the day."

Eggs.—Clutch one. The eggs vary in shape from oval to broad elliptical ovate. The shell is smooth, but without lustre, and the colour is dull white, more or less discoloured. One has a wreath of small purplish-brown dots near the larger end, and in one these dots form a cap over the whole of that end ; the other has a larger cap of such dots with many minute dots scattered over the egg. The three measure 34·5 × 24 ; 34 × 25 ; 32·5 × 25 mm. (average 33·6 × 24·66).

Breeding season December and January (Juan Fernandez Group).

Juvenils.—The new plumage, which shows under the quaker drab-coloured down, is much like the adult plumage, except that the scapulars and the wing-coverts, particularly the latter, are broadly edged with white.

An interesting characteristic of this bird is the manner in which it strikes the water with one foot. In a breeze or wind it was always the leeward leg that was used, the windward one being stretched out behind. As our schooner was always on the wind, the Petrels usually had but little use for the leg on the southern side of the body. When the birds flew directly into the wind either one or the other or both legs might be used.

[Local name "Storm Pigeon." This species is well known to the people and is not uncommon in the islands. Two skins have been sent me, one of which is labelled "Inaccessible Island, 28th April, 1923." I do not know if it ever breeds on Tristan itself, but it is said to do so on either Inaccessible or Nightingale, or possibly both, though no eggs have been sent as yet.

The egg is described as measuring 33·5 × 25, dull white in colour, slightly spotted with reddish brown at the larger end, while the nest is of dry grass in a burrow 18 in. long.]

FREGETTORNIS MELANOLEUCA. Black and White Storm Petrel.

This bird was said by Salvadori to be from Tristan da Cunha. So far it remains unique. Its equilateral-shaped foot shows it to be a *Fregettornis*, but the size of the foot prevents it being any known form other than itself.

As we have no material on which to form an opinion, we must leave it as it is, and establish it as a species, as I pointed out in my *Birds of Norfolk and Lord Howe Islands*, p. 9, October 16th, 1928.

FREGETTA TROPICA MELANOGASTER (Gould). **Black-bellied Storm Petrel.**

This subspecies was described by Gould, from the South Indian Ocean, and figured by him, vol. vii, pl. 62, 1847, and in my *Birds Austr.* vol. ii, pl. 71, 1912, and by Godman on pl. 17, 1907, from the South Indian Ocean, breeding on Kerguelen and the Crozets ; and the Austro-New Zealand bird is *australis* breeding on the Auckland Islands off New Zealand.

It breeds on Laurie Island in the South Orkney Islands, in December (Clarke 2), in a crevice in a rock, placed about 15 ft. above the sea-level. The female was sitting. The eggs measured 36 × 25·5 mm. The Kerguelen egg (clutch one) is dull white sparingly dotted all over with small pink dots and measures 37 × 27 mm.

The Austro-New Zealand form constructs a small burrow in the bare earth, about 18 in. long, at the end of which is an enlarged chamber, lined with a good handful of dried grass.

The clutch is one egg, which is elliptic, blunt at each end ; white with a pinkish tinge and a broad ring of maroon speckles in or above middle. The measurements are 38·5 by 27 mm. (Oliver 9) ; 37 by 27 (Stead, June 13th, 1932).

Breeding season January and February, Auckland Island.

Lowe and Kinnear (7), pp. 126–8, go fully into the species, and doubt if *melanogaster* can be separated from *tropica*.

PUFFINUS ASSIMILIS ELEGANS G. and S. **Gough Island Shearwater.**

In my *Birds of Australia*, vol. ii, pp. 50–71, pl. 73, 1912, I gave the full history of this species, and for the first time showing clearly the differences between *assimilis* and *lherminieri*, which up to then had been mixed up by all workers ; later Dr. Murphy, in the *Amer. Mus. Novit.* No. 276, September 8th, 1927, also discussed these forms.

Godman, in his Monograph, pl. 36, 1908, figured the type skin of *elegans*, which had already been figured by Salvin in Rowley's *Miscell.*, pl. 34, in 1876. The type came from S. Lat. 43° 54′ ; E. Long. 9° 20′.

It was found breeding (Clarke 1) on Gough Island. The nesting burrows were deep and situated on the steep grass-covered bank flanking the side of the ravine. The locality was honeycombed with their holes.

The typical bird's egg (the clutch is single) is white, oval in shape, smooth and without gloss, and the average measurements are 50 × 35 mm.

[This form was found breeding on Gough Island by the Scotia Expedition. It seems little known in the Tristan Group, however, but a single skin was found in the collection sent in 1919, which is possibly the first record for the island. With it was an egg said to be of the same species, taken from a burrow, but with no data. It is oval and white and measures 51 × 35·8.

I have two eggs of the typical form taken at Lord Howe Island on the 30th July, 1929. They are smooth, pure white and rather oval, and measure 50 × 35·3 and 48 × 33; while two of the form *P. a. kermadecensis* from the Kermadecs are 50·8 × 33·2 and 49·8 × 35·8.]

[PUFFINUS LHERMINIERI. Brown-backed Little Shearwater.

Bent (11), under *lherminieri* of Lesson, says that the birds breed in colonies in holes or crevices of the rocks, but seldom more than a foot from the surface.

The single egg is laid on the rock or in a loosely constructed nest of twigs or dried grass.

The egg is white, fragile and not highly polished. The average measurements are 52·5 × 36·2 mm. The four extremes measure 57·3 × 40·8, 49·2 × 35·2, 50 × 34 mm.

The breeding season on the Bahama Islands is April.

Incubation is carried on by both parents, and before the egg is laid both occupy the hole together. The parent does not brood the young, but merely sits beside it during the first day or two of its existence, after which it is left alone during the daytime.

This species does not occur in Tristan, but is added for comparison.]

ARDENNA GRAVIS (O'Reilly). Greater Shearwater (Petrel).

This bird is figured by Godman in his Monograph, pl. 25, 1908. It flies the Atlantic Ocean from Greenland to South Africa and South America.

On Nightingale Island Wilkins (4) says that many burrows of this bird were dug out, but in May they showed no sign of mating.

They breed on both Nightingale and Inaccessible Islands in November, where at night they flock in by the hundreds. A few were caught in their burrows.

Bent (11) says that this bird is called the hag, hagdon or hagdown by sailors. He quotes Jourdain, who describes the eggs (the clutch is single) as white, with no trace of markings, though slightly stained by the soil. The shape is a pointed oval; and they are entirely devoid of gloss. The smooth surface, being covered closely with minute granulations. The average measurement of eight eggs is 77·7 × 48·6 mm., and the breeding season given me by this latter contributor is May on Tristan Group, March on Nightingale Island, September on Inaccessible Island; surely a varied season.

"The flight of the Greater Shearwater is extremely graceful and very characteristic. With long, sharply pointed, slightly decurved wings they scale along close to the waves, sailing into the teeth of the wind by skilfully taking advantage of the air currents deflected upwards from the surges. Now they turn on their side with one wing just grazing the water, the other high in the air. Again they take a few quick wing strokes and land themselves just above a breaker, but so close that one expects to see them overwhelmed in the foam.

One cannot help noticing the shape of their bodies, cylindrical and tapering posteriorly, a cigar-shape well adapted for rapid passage through the air without 'dragging.'

"Owing to the great length of their wings, Shearwaters need a strong wind to rise from the surface of the water, and even then they often make the surface foam as they climb up the waves paddling vigorously with alternate feet. In perfect calms the advent of a swift-moving steamer in the midst of a flock becomes for these birds a matter of serious concern. They flap along the surface heavily, using both feet and wings, and as they struggle they 'lighten ship' by vomiting up the contents of their crops and stomachs. Some, unable to rise above the water, endeavour to hide themselves below the surface by vigorous actions of both wings and feet, but in this, as in the case of the proverbial ostrich in the sand, they are only partially successful. Like Petrels, the Shearwaters occasionally skip along the surface of the water on their feet, using their wings to balance and support them.

"The Greater Shearwater is on occasions an active diver, and is able to swim well under water. It dives from the surface of the water on which it first alights.

"Two that had been caught walked as well as ducks and made no pretence of sitting on their rumps. . . . When set at liberty they launched towards the water, dived several yards obliquely, and on coming to the surface splashed and washed themselves for several minutes before they took to wing.

"The vocal performances of the Greater Shearwater are limited to harsh cries and screams which they emit when eager for food.

"The eagerness of these birds for food is so great that they seem to be devoid of all fear of man and recklessly approach close to the boat from which the food supply comes.

"The cylindrical, tapering body, the long curved and pointed wings and graceful flight make the recognition of this Shearwater an easy one. The black bill, white breast and belly, the greyish-brown back and dark head, the white patch at the base of the tail, and the dark bars on the sides and flanks are all points to be noticed in its recognition."

The eggs vary in measurements, the largest being 81·7 × 47·4 from Inaccessible Island, September, and the smallest 70·3 × 46·9; the widest is 80·2 × 52, Nightingale Island (March), the narrowest 71·6 × 44·3, Inaccessible Island.

It seems unlikely that this bird breeds on the same group in March, May, September and November. Perhaps the islanders who collect these eggs get the dates wrong. I suggest the breeding season as September to November.

[Local name. "Petrel." This is the correct local name among the Tristan people, and not "Pediunker," as has been stated elsewhere, the latter name referring to *Adamastor cinereus*. About a dozen skins have been sent me at different times, two from Inaccessible being dated 26th April, 1923. The Great Shearwater is plentiful round Tristan, Nicol stating, on the 17th January, 1906, that "it was seen in some abundance, and nearly always two together, so probably breeds there. But it does not appear to nest on this island, though it does so in large numbers on both Inaccessible and Nightingale. The *Quest* Expedition records that on the 21st May, 1922, "many burrows of this species were found on the hillsides on both islands, but that between 10 a.m. and 5 p.m. very few were occupied. And although many were dug up, there was no trace of a nest, nor did the few birds captured, betrayed by their grunting, show any sign of

being near the mating period. At night they seemed to flock in by the hundred. The Tristan Group is, curiously enough, the only known breeding place of this common Shearwater, though the eggs in some older collections come from some weird and unlikely places, as Greenland! Seemingly the first authentic eggs were four or five obtained with skins by P. C. Keytel on Inaccessible in November, 1908. (It is stated by Mrs. Barrow, in her book, page 174, that the Rev. J. G. Barrow and a boat's crew from Tristan visited Inaccessible from 5th to 11th November, 1907, and "were able to get a few 'Petrels'' eggs, but digging these out of the nest holes was wet and muddy work.")

The first egg I obtained was collected by John Class at Inaccessible on the 11th November, 1917, and was taken from a burrow on a hillside there. It is a small egg measuring only 70·3 × 46·9. The Rev. H. M. Rogers most kindly sent me a dozen eggs all taken at Inaccessible on the 14th November, 1924. The nests were made of a little dry grass at the end of a long burrow in hillsides, and several of the birds were caught at home. Unfortunately most of these eggs arrived smashed, but I have been able to measure ten which average 77 × 49. The 1917 egg is slightly the smallest, while one long pointed egg measures 84·5 × 50.]

PRIOCELLA ANTARCTICA (Stephens). Silver-grey Petrel.

This bird was observed on Laurie Island in November and December, and it was considered highly probable that a few pairs were nesting there (Clarke 2). It was said (Clarke 3) to nest at Cape Roquemaurel, on the west coast of Louis Philippe Land.

The maxilla and mandible are tipped with black, the middle portion of the bill pale flesh coloured and the base and nares pale cobalt-blue. Feet pale flesh, the webs washed with yellow, claws black. Iris dark brown and the pupil blue-black. It was recorded by Moseley; and Wilkins (*Ibis*, 1923, p. 497) from Tristan.

Lowe and Kinnear (7) say the bird moults in March, and reports it common at sea.

The bird is figured by Gould, vol. vii, pl. 48, 1848, and in Godman's Monograph, pl. 43, 1908, and in my *Birds of Austr.* vol. ii, pl. 82, 1912.

It breeds at Penguin Point, Haswell Island, and Stillwell Point, Adelie Land, in December [and January ?]. The burrows may be formed in firm snow or in niches among the boulders or ensconced in bowers excavated beneath the snow.

The clutch is one, white, dull and lustreless; oval to pointed oval; the shell is fine grained, with numerous irregularly shaped pittings over the surface. They measure 70, 75 and 84 × 46·5 mm., 48 and 49. Average of three, 76·3 × 47·6 (North).

ADAMASTOR CINEREUS (Gm.). Great Grey Petrel (Pediunker).

This bird has a vast distribution, breeding on Gough Island in the Atlantic and Round Island near Mauritius and Kerguelen Island; also Macquarie Island, off New Zealand. It occurs around the Antarctic Circle.

This bird was discovered on Cook's voyage, off New Zealand, and beautifully described by Solander as *Procellaria pallipes*. It is figured by Gould, vol. vii, pl. 47, 1848, Godman's Monogr., pl. 41, 1908, and in my *Birds of Austr.*, vol. ii, pl. 81, 1912.

In life from Gough Island the maxilla is dull pea-green ; the nostrils, culmen and unguis are black ; the mandible with apical plate and cutting edge is black, the lower plate pea-green. Tarsus and toes pinkish grey, darker or blackish at the joints, the webs yellowish (Clarke 1).

Lowe and Kinnear (7) give a cut of the bill, showing a different coloured bill for the Austro-New Zealand bird, and say that it dives into the water after the garbage thrown overboard, with its wings half outspread from a position as if it was just about to settle on the water. Wilkins (4) found them in burrows on the hillside about 1,800 ft. up on Gough Island, between May 28th and June 1st, 1922.

The Austro-New Zealand bird differs from the Gough Island form in the colour of its bill. The Austro-New Zealand bird has the tips of both mandibles horn-colour ; the apical plate pale horn-colour, not black ; the lower plate dull white, not pea-green. It nests in a burrow on the mountain of Tristan da Cunha in April. The white eggs measure 79–85 × 57–58 mm.

[Local name, " Pediunker " or " Paddyunker," which is the correct Tristan name for this species, and does not refer to the Great Shearwater, which is locally known as " Petrel."

In the Appendices to Mrs. Barrow's book the following rather mixed account appears, which from the breeding date, etc., undoubtedly refers to this bird, and not to the Great Shearwater, which nests in November.

" 10 The Pediunker lays in May and June ; it is like a Petrel. We think it must be the Shearwater [*Priofinus cinereus*] of which we were told at the South African Museum, Cape Town, that it frequents Scotland and that its nesting-place was unknown until Mr. Keytel brought a specimen of it and its eggs from Tristan in 1909." I received one skin from Tristan in 1919, and two labelled " Paddyunker," " Inaccessible," 26th April, 1923. Three eggs have also been sent me, one said to be from a burrow with the first skin. One data reads, " ' Paddyunker ' eggs from burrows from the side of the mountain, Tristan da Cunha, 6th April, 1923." These eggs measure 85 × 58, 81 × 53 and 79 × 57. They are dull white, without gloss, the ends being rounded. One is considerably earth-stained. Colonel R. Sparrow has also three Tristan taken eggs which measure 85·2 × 55, 84 × 56·5 and 83·5 × 57·5, but they are without date. [Are these the eggs of *Procellaria* ? See next species.—G. M. M.]

Although this species has been recorded as breeding at Gough Island, there is, I believe, no record in literature of its occurrence in the Tristan Group. If these are correct, there is something seriously wrong with the eggs recorded previously. Eggs accompanied by a skin of the bird were collected on Macquarie Island in the latter part of November 1896 by Joseph Burton. A. J. Campbell gives the average of seven of these eggs as only 70·6 × 51·4, the largest being 71·5 × 51·4, and describes them as either roundish or broad oval ; texture of shell close, but coarse, surface very slightly glossy, and colour pure white, but become nest-stained.]

PROCELLARIA AEQUINOCTIALIS AEQUINOCTIALIS (L.). Cape Hen or White-chinned Petrel.

There is another well-known Petrel to the early travellers. It occurs off the Cape, the Falklands and the Southern Ocean, up to South America and New Zealand.

Godman figured it in his Monograph, pl. 44, 1908, from Valparaiso—this is *brabournei*; and I figured the Austro-New Zealand form *steadi* in my *Supplement to the Birds of Norfolk and Lord Howe Islands*. The typical form breeds on the Falklands or South Georgia, while *mixta* breeds on Kerguelen and the Crozets. In my *Birds of Australia*, vol. ii, p. 111, 1912, I give a text figure of *mixta*, showing the white extending down the throat, and on p. 112 the very small chin spot of the Austro-New Zealand bird. Gould, in vol. vii, pl. 46, 1848, figured the form known as *conspicillata*, and so did I, in vol. ii, pl. 79, 1912, of which the type locality is Cape Seas, where the bird I figured was caught at sea by Mr. Richard H. W. Leach, somewhere about 1863, on his voyage to Australia. In spite of what Gould says, this form does not occur off the Australian-New Zealand waters, and must be removed from the list.

"On Kerguelen they nest in burrows on the sloping sides of a hill, frequently with an inch or two of water at the entrance. The nesting chamber is spherical in shape and rather large; the nest is composed of mud and pieces of plants arranged in the form of an inverted saucer, three or four inches high, slightly hollowed out on the top, a space being left between its base and the sides of the chamber."

Egg.—Clutch one, white, nearly equally pointed at both ends, and measures 81 × 52 mm. Breeding season, December.

"Both sexes sit on the egg, the males by day. During the period previous to nesting, the birds make an extraordinary cackling in the burrow at night. When dug out of their nests, if handled the birds utter a high-pitched cry and frequently inflict a severe wound with their beak and claws. They make no attempt to fly, unless chased, but waddle back to their burrows."

On Antipodes Islands the burrows are the same, the egg is laid in December and the young fully hatched in May.

"On Auckland they nest in January and February. Nests consisting of a considerable accumulation of dry grass, placed in an enlarged terminal chamber, at the end of a burrow about three feet long. In the wet peaty bank, the upward sloping burrow opened at its inner end into a chamber about a foot and a half in diameter. The mud from the floor of this chamber had been raked up into a heap in the centre of it, leaving a perfectly formed drain all round, from which the water trickled out down the burrow. The nest was built of grass, as before, and placed in a shallow depression in the central heap, two or three inches above the water in the surrounding drain. I later ascertained that the birds build those heaps by standing knee deep in mud in the middle of the nest chamber and raking the mud inwards with their bills (Stead in Oliver 9)."

Egg.—Clutch one, white and ovoid, 80–83 × 53·5–55 mm.

Breeding season, December to February. Young fully fledged in May (Oliver 9).

Lowe and Kinnear (7) tell us that when feeding they go completely under water, with their feet and wings outspread, and come up again with the wings still spread, exactly as do the Shearwaters.

[The *Quest* Expedition in May 1922 saw this species in the vicinity of the group, but the people, when questioned, said that they were seldom seen, and that they did not think they nest at the islands. I have had no skins, nor have the people mentioned it to me.

I have no eggs of this bird myself, and the only description I can find of them

is that of the Rev. A. E. Eaton, who accompanied the *Transit of Venus* Expedition to Kerguelen Island.

He describes the breeding season as from November to January, and the nest as a burrow on a sloping hillside with a spherical chamber at the end; the egg as an elongated oval, coarse in texture, slightly glossy and pure white in colour, measuring 86 × 52.

This is much nearer the size and description of the eggs taken on the mountain in April and sent to Col. R. Sparrow and myself, the largest being 85 × 58: but the skins are certainly *A. cinereus*, and both skins and eggs are labelled "Paddyunker."]

PTERODROMA MACROPTERA MACROPTERA (Smith). **Great-winged Petrel (Black Eaglet).**

This bird breeds on Tristan da Cunha in June and July, not high upon the mountain-side, where it forms a burrow in the ground, at the end of which it lays its egg, oval in shape, white, with no gloss; measurements 68–69 × 48–49 mm.

It is figured by Godman in his Monograph, pl. 46, 1908, and I figure the New Zealand form *gouldi* in vol. ii, pl. 83, 1912, which breeds on the island north of New Zealand; the eggs measuring 65·5–67 × 48·5–49 mm. The Western Australian form *albani* is found on Rabbit Island.

Lowe and Kinnear (7) give a text figure showing the bird in flight.

Dr. R. C. Murphy suggests that "Eaglet" is a corruption of "Haglet," which is a common name for Petrels amongst American whalemen.

[Local name, "Black Eaglet." This is a common Petrel at Tristan, and well known to all the people.

Mrs. Barrow states that it comes in to moult in May, and lays in the first week of July. But she also writes on the 24th May, 1906: "Glass brought back some Eaglets' eggs from the 'Bluff,' they are about as big as a Duck's and white. We had them for supper, they have a slightly fishy taste." On the 13th June she continues: "During a picnic to the 'Base' some 2,000 ft. up my husband looked for Eaglets' eggs, but only found one. The hen was caught but liberated again, when unfortunately the dogs got it." On the 22nd of that month she adds: "Rob the collie also learned to hunt for Eaglets, which nest in holes, but had to be restrained, as he killed the birds. We had scrambled Eaglets' eggs for breakfast to-day." But from the dates I fear that she must have had scrambled cliff-Petrels, as well as their eggs!! She also writes on the 7th October, 1906: "The men, in their spare time just now, hunt for young Eaglets, which they are bringing in in large quantities." The only mention of them in Mrs. Rogers' book is, "Black Eaglets are got in June and July, and we found them good eating."

I have received several Tristan skins, one of which is labelled "Seal Bay, Tristan, 1st June, 1923."

On Tristan they breed plentifully on the hillsides above the "Base," at an elevation of some 2,000 ft., making a slight nest in a burrow. The egg is very white and smooth, without gloss, and rather oval in shape. Six eggs average about 68·8 × 48·2, my largest being 69 × 49. They also breed on Inaccessible and Nightingale.]

PTERODROMA INCERTA (Schlegel). **Atlantic Petrel.**

This bird was obtained on Tristan da Cunha, and is figured by Godman in his Monograph, pl. 53, 1908, where he considered that it may be a brown phase of *lessoni*, as it has the blackish mark in front of and round the eye. It is practically the same size.

In my *Birds of Australia*, vol. ii, p. 148, 1912, I discuss *Procellaria alba* Gmelin (see also *Ibis*, 1913, p. 231). However, Loomis, in the *Auk*, 1920, p. 88, is quite satisfied that *alba* is the *parvirostris* of Peale = *wortheni* of Rothschild, and should be called by the older name.

The *Procellaria sandaliata* of Solander, the description of which I reproduced on p. 151, is probably this bird, collected off the east coast of South America, at the mouth of the Rio de la Plata. As *sandaliata* was put as a synonym of *arminjoniana* in the *Catalogue of Birds*, vol. xxv, p. 413, 1896, it cannot be again used.

[I do not know of any local name for this Petrel, and only one or two of the people recognize it; though Nicoll states that on the 17th January, 1916, it was observed off Tristan, and possibly nests there also. He describes it as about the size of a large pigeon, dull brown on the back, with almost golden neck, and white underparts. I have only received one skin of this species, from Tristan, and a single egg said to have been taken from a burrow on a hillside at the "Bluff" in June 1918. This egg is dull white, bluntly oval, with a very thin shell, and measures 61·5 × 48.] [Is this the first description of the egg of this species ?—G. M. M.]

PTERODROMA EXTERNA TRISTANI Mathews. **Juan Fernandez Petrel.**

Pterodroma externa tristani Mathews, *Bull. B.O.C.* lii, p. 63 (1931). Tristan da Cunha.

This bird breeds on the Juan Fernandez Group. It is figured by Godman in his Monograph, pl. 62, 1908; it is replaced in the Kermadec Island Group by the subspecies *cervicalis* which breeds on Sunday Island. This subspecies is also figured by Godman on pl. 63; the *Catalogue of Birds*, vol. xxv, pl. 6, 1896, and by Buller in his *Supplement*, pl. iv, 1905. The egg is pure white, broadly ovoid, and measures 64–68 × 57–48. The egg is laid at the end of a burrow in December and January, on Sunday Island. In November they are found in their burrows. The young leave the island in June (Oliver 9).

The discovery of this bird on Tristan is most peculiar, as it is a Pacific Island form. Compare *ante* under *Fregettornis grallaria*.

In working up the distribution of the Petrels, I find that latitude is most important. That is to say, that the birds in the same latitude resemble each other more closely, although separated by many miles, than do birds separated by many degrees of longitude.

PTERODROMA MOLLIS MOLLIS (Gould). **Soft-plumed Petrel (White-breasted Black Eaglet).**

This bird was found breeding on Tristan da Cunha in November of 1917. This is the first time the eggs have been described (see *Ibis*, 1932, January, p. 165). The bird forms a burrow and lays a single egg at the end, which is enlarged into a chamber. The egg is white, dull with no gloss and measures 63·5 × 49·8 mm.

It is represented by a subspecies *feae*, which breeds in Madeira and occurs at

the Desertas and Cape Verde Islands. The Rev. F. C. R. Jourdain writes me that the eggs of this subspecies measure 55·5 × 41·2 ; 52·7 × 40·2 ; 59 × 42 ; the average being 56·4 × 41·1 ; one weighed 2·45 g., another 2·95 g.

The typical form occurs in the South Atlantic and Indian Oceans, east to St. Paul's and Amsterdam Island, and on the west coast of Australia, where three occurrences have been recorded.

It is figured by Gould in vol. vii, pl. 50, 1848, and Godman Monograph, pl. 54, 1908, and I figured a supposed Australia bird, vol. ii, pl. 86, 1912.

The *Challenger* Expedition obtained two specimens on Nightingale Island on 17th October, 1873, and three examples were secured off Gough Island, and the egg obtained was believed to be of this bird (Clarke 1, p. 262) ; it measures 61 × 42 mm. It will be noted that this egg is smaller than the Tristan one and larger than those of *feae*. The average of the five eggs is 58·2 × 43·04 mm.

Lowe and Kinnear (7) record one taken off Cape Town and one at sea N.W. of Tristan da Cunha, and on pl. vi give a coloured drawing of the head and leg.

Wilkins (4) found them in their burrows in the hillside near the beach on Gough Island, from 28th May to 1st June, 1922. Many others were observed coming inland in the late evening, and their croakings could be heard throughout the night. He also observed them at sea on the voyage from Gough Island to Tristan.

[Local name, *White-breasted* Black Eaglet. All Mrs. Barrow says of this species is "that it lays in November." However, it seems to be quite well known to the Tristan people, though it was some years before we could make out for what species the above local name stood. However, in 1919 a skin arrived with this local name attached, which proved to be *mollis*. Unfortunately I have no information as to whether this species is plentiful or not at Tristan, but believe that it is found on all three islands. Two eggs have been received at different times, one taken at Tristan in November 1917 and the other in November 1923. They are dull white with no gloss, rather spherical in shape and measure 64 × 49·6 and 63·5 × 49·8. The nests were at the end of burrows on a slope. Does it also breed at Gough Island ?]

In the Bird Room of the Natural History Museum is a bird of the same size as *mollis* from South Lat. 36° 8′ and East Long. 88° 55′. It is uniform dark greyish ; the chin and upper throat are mottled, like the lores and forehead. It can be called *Pterodroma deceptornis*. Type 43–7–14–34. The nearest land is New Amsterdam and St. Paul's Islands.

PTERODROMA BREVIROSTRIS (Less.). Kerguelen Petrel.

This bird breeds on Kerguelen Island. It is figured by Godman in his Monograph, pl. 60, 1908.

The nest, placed at the end of a burrow of varying lengths, is in an enlarged chamber and composed of damp and decayed vegetable matter. The egg is single, white and measures 50 × 38 mm. The breeding season is from October to December. Young found in January.

It was recorded from 69° 33′ South and 15° 19′ West (Clarke 3), and from Australia by Campbell from a specimen washed up in Western Australia on 6th June, 1926. I figured and described it in my *Birds of Norfolk and Lord Howe Islands*, p. 102, pl. 38, 1928.

[Local name, "Night-hawk" (?). There is no mention of this Petrel in either Mrs. Barrows' or Mrs. Rogers' books. The people have not mentioned it in any of their lists, but then they have a habit of forgetting species that are quite common there. Nor have I received any skins in any of the collections sent.

The *Quest* Expedition in May 1922, from questioning the people, include it with a query, as breeding there in November, but they did not see any themselves.

W. B. Alexander, in *Birds of the Ocean*, 1928, says that it breeds at Tristan da Cunha and Kerguelen. On what authority I do not know.

Among some eggs sent to Col. R. Sparrow from Tristan in 1929 by R. Glass, but with very scanty data, are *A. cinerea*, *P. gravis*, *P. macroptera*, etc., and a single egg which Glass considers distinct, and named "Night-hawk." It is very white, oval and pointed and measures 69·5 × 53·5.

I have no eggs of this Petrel myself for comparison.] [Are these the eggs of *Adamastor* ?—G. M. M.]

DAPTION CAPENSIS (L.). Cape Pigeon or Spotted Petrel.

It is also called the "Pintado" bird, of which the genus name is an anagram.

This widely distributed bird occurs in the Antarctic oceans and northward almost to the equator. It is figured by Gould, vol. vii, pl. 53, 1847; Godman, in his Monograph pl. 80, 1909; and in my *Birds of Australia*, vol. ii, pl. 90, 1912. The Austro-New Zealand subspecies probably breeds off New Zealand.

The Pintado bird of the world's early navigators is probably the best known of all the Petrels to travellers. Its eggs, however, were not found till 2nd December, 1903, at the South Orkneys (Clarke 2).

"The three nests from which eggs were obtained were placed on open exposed edges of cliffs on the west side of Uruguay Cove, Laurie Island, at heights of from twenty to one hundred feet above sea-level.

"The nests were composed of a few small angular fragments of rocks and a little earth, and contained single eggs, which were quite fresh.

"When approached, the sitting birds ejected an evil-smelling reddish fluid, of semi-digested crustaceans, with great precision for a distance of six or eight feet. They did not, however, leave their nests, and were captured while sitting.

"They seemed of a sociable nature and nested together, but isolated nests were not uncommon. Both sexes were often found sitting side by side, one on the nest and the mate close alongside, and cooing and clucking to each other.

"Eggs were taken also in January. On the 18th of this month a chick five days old was taken, and others were still in down on 5th February.

"The adult, before laying its egg, sits close on the nest for about a month and then entirely disappeared for some ten days, when it returned and laid its egg.

"The eggs, which are pure white, vary from oval to elongate ovate in form. The former measure 56·5 × 43 mm.; and the latter 67·2 × 43·3; the average being 62·35 by 43·11. The length varies from 56·5 to 67·2, and the breadth from 46·5 to 40·5.

"The numerous nests found were placed either on ledges of cliffs, or, though these were few, in hollows in the earth and among small stones on steep scree-slopes, and all were quite open. Whereas on Kerguelen they nest in burrows and grottoes. It is also thought to breed at South Georgia. About 20,000 birds of this species nest on Laurie Island. The chick in down, five days old, is slaty-grey above, and paler and sooty on the undersurface.

" A young bird has the head and body clad in down, with feathers developing on the wings and scapulars. The down on the uppersurface is sooty, darker on the head and cheeks, and paler and greyish on the underparts. The wing-quills, the largest of which are two inches in length, are black, some of them with the inner webs white towards the base. The feathers of the scapulars are black and white. There are no signs of tail feathers. Wing eight inches.

" They leave the breeding place in April, and the first of the spring migrants returned on 1st October, and became plentiful by the 23rd."

Further notes were added by Clark (3) ; Lowe and Kinnear (7) do not admit a subspecies, and quote Wilson's note : " I saw one dip entirely, with half-spread wings, to get a piece of garbage, and reappear with a splash like a Shearwater. To rise from the water it had to run on the surface, four or five splashing steps.

PACHYPTILA VITTATA KEYTELI (Mathews). Tristan Broad-billed Prion (Nightbird).

This bird lays its eggs on the stones at the back of a dark cave on Inaccessible Island in September (10th, 1917) (*cf. Ibis*, 1932, January, p. 165).

It is recorded for Gough Island (Clarke 1) with a wing of 220 mm. The lower plate of the mandible was pale blue and the remainder of the bill black ; tarsus and toes cobalt-blue, webs black. Wilkins (4) says it lays in September. He also dug them out of deep burrows on the hillside near the beach on Gough Island between 28th May and 1st June.

[Local name, " Nightbird." This species, once common, seems to have become scarce at Tristan. Mrs. Barrow writes, 17th September, 1908 : " Mr. Keytel, my husband and Rapetto went by boat to visit Freshwater Cave in search of Nightbirds. The cave is about 100 yards in length. At the far end is a pebbly beach where the birds were supposed to be. Between it and the mouth was water which had to be crossed. They saw about a dozen Nightbirds and got seven eggs." Mrs. Rogers also visited this cave in 1923, and writes : " There is a shingly beach, and a small dark cave at the end at one time the haunt of Nightbirds, but they seem now to have completely deserted it. Indeed, these birds seem to be leaving Tristan now. They used to be easily caught by the curious expedient of lighting fires in the caves, which attracted them down. Their eggs are very good eating. Near by is ' Guano ' or ' Dry ' Cave, also about 100 yards long and fairly lofty. The floor is of sand mixed with guano, and quite dry. But the birds have now deserted it also." However, they still breed in some numbers on both Inaccessible and Nightingale. One skin was received from Tristan in 1919, and two obtained at Inaccessible on the 26th April, 1923. I have only two eggs, white and smooth and rather oval in shape. One taken at Freshwater Cave on the 10th September, 1917, measures 52·5 × 35, and the other at the same place on the 20th September, 1922, is 51·5 × 35.]

MACRONECTES GIGANTEUS (Gmel.). Giant Petrel.

This large dimorphic, ugly-billed Petrel, the Nelly of sailors, has a bad reputation, as it catches and swallows whole, the Prion, on the wing.

It is figured by Gould, vol. vii, pl. 45, 1848 ; Godman, in his Monograph, pl. 76, 1909 ; and in my *Birds of Austr.* vol. ii, pl. 89, 1912.

If we consider *giganteus* to be the Staaten Land form, including the South

Orkneys, and breeding on Graham's Land; and treat the Falkland Island form (*solanderi*) and the Kerguelen Island breeding bird (*halli*) as wandering in the off season up the western coast of South America (*forsteri*), as synonyms, we must admit the Austro-New Zealand subspecies *albus*, with the Ross Sea bird (*wilsoni*) and the Australian form (*dovei*), as synonyms.

This makes the Tristan breeding bird also *giganteus*, which seems wrong; perhaps *solanderi* would be more correct.

This bird breeds on Gough Island (Clarke 1), where it lays its egg in the middle of September. It enters the Penguin rookeries and carries off the young; and it pulls Petrels out of their holes. The egg is ovoid to elliptical, white, shell coarse and granulated and rough with no indication of gloss.

"Breeding season, South Georgia, November, December and January; Falkland Islands, October and November; Gough Island, September.

"Five thousand birds nest on Laurie Island, South Orkney Islands (Clarke 2). They nest in rookeries, and the nests consist of great piles of small angular stones and measure two feet in diameter. The clutch is single, and the average (80 eggs) is 103·8 × 65·7. mm.

"The bird had to be pushed off the nest to get the egg. They showed no fight, and usually sat down a yard away. They did not shoot oil from their nostrils, but vomited the contents of their stomachs, not as defence, but to lighten themselves before taking to the wing."

A photo appears of nest, egg and adult on pl. xi.

Lowe and Kinnear (7) devote twelve pages to this bird, of which four and a half are measurements of tarsus and the length and depth of the bills. In all about a hundred birds are measured. They admit no subspecies, although two are indicated. They prove that the white phase starts life in white down and the dark phase in dark down. That is, age had nothing to do with colour; this I have always thought to be the case. Young *Diomedia exulans* can always be distinguished from *Macronectes* by the fact that *exulans* at all ages has the underwing white, with a black tip and edging, whereas all dark phases of *Macronectes* have the underwing dark. Otherwise both are very dark on the upperparts and show no white.

[It is stated in Sclater, *Syst. Av. Aethiop.* i, p. 15, 1924, that it breeds at Tristan. Alexander, in *Birds of the Ocean*, 1828, repeats this. However, no skins, or eggs, have been sent me by the people as yet, nor has it been mentioned in any of their letters, and it seems strange that, if these large, conspicuous birds breed at all commonly at the islands, no one seems to know it.

It breeds commonly at Gough Island, some 250 miles away. Two eggs of the *M. g. solanderi*, which is said to be the subspecies occurring in these seas, from the Falkland Islands measure 102·3 × 63 and 101 × 65·2, and are very white and rough in texture; while two eggs of the typical race from South Georgia are 106 × 65 and 100 × 66.

The nest is just a hollow on the ground.]

PELECANOIDES URINATRIX DACUNHAE Nicoll. Tristan Diving Petrel (Flying Penguin).

This form breeds on Tristan; the Austro-New Zealand bird is figured by Gould, vol. vii, pl. 60, 1844; Godman figured a form in his Monograph, pl. 86,

1910, and the Kerguelen bird *exsul*, pl. 87; and I figured the Chatham Island subspecies, vol. ii, pl. 94, 1912. There are about half a dozen forms.

It is recorded from Gough Island (Clarke 1). It breeds on Nightingale Island in November; the clutch is single, white, dull with no gloss, and oval in shape. 36·5 × 30 mm.; 38 × 29. The egg is placed at the end of a burrow.

[Local name, "Flying Penguin." This Diving Petrel is peculiar to the Tristan group, and was first recognized by Nicoll on the 17th January, 1906, off Tristan, who remarks: "a new species, half a mile from the shore they were on all sides." However, since that date very little seems to have been recorded about this bird, and neither Mrs. Barrow nor Mrs. Rogers mention it in their books. No skins have been found in any of the collections received, nor have any of the natives mentioned it in their lists or notes of species found in the islands.

Among the last eggs given me by the Rev. H. M. Rogers is one supposed to be that of this little Petrel. It is white, rather stained, and roundish in shape, and measures 38 × 29. It was taken from a small burrow lined with feathers, etc., at Inaccessible on the 14th November, 1924.

In January 1930 Colonel R. Sparrow, who had obtained some eggs from Tristan (mostly broken), most generously gave me an egg of this bird taken by R. Glass at Nightingale in 1929. Unfortunately his data is very vague. All he says is, "No. 5 The Flying Penguin, one of the most important birds which lay on Nightingale Island, which I went especially across with my boat for to collect Seabirds' shells." This egg measures 36·5 × 30, and is much like the other but rather rounder and more stained.]

DIOMEDEA EXULANS EXULANS L. **Wandering Albatross (Gony).**

This bird formerly bred on Tristan da Cunha, now only on Inaccessible Island in this group. Gould figured it in vol. vii, pl. 38, 1844; and Godman, pl. 89, 1910: and I figured the Austro-New Zealand form in vol. ii, 95, 1912.

It also breeds on Gough Island (Clarke 1) in December (end) and January. The young stay on the island till they are ten months old before they go to sea. Numbers are killed by the Nellies and Skuas, only about 5 per cent. reach maturity.

Lowe and Kinnear (7) give a text figure showing a scarlet mark on the head behind the eyes, like a red collar. They give the plumage changes from nestling, through four changes, to adult, and consider *chionoptera* to be the Kerguelen Island subspecies.

[Local name, "Gony." Mrs. Barrow writes, 9th February, 1907: "Yesterday the men went out in a boat to shoot Albatrosses, and got seven. Once they nested on the island, but now nests are not to be found nearer than Inaccessible Island." Mrs. Rogers also remarks in 1923: "Albatrosses have entirely left the island."

Four skins were received in 1919 from John Glass and Tom Rogers, but an egg they also sent, with others, never arrived!

However, the Rev. H. M. Rogers sent me a single egg taken on Inaccessible Island on the 1st November, 1924, with the remarks: "Nest cone-shaped, and over a foot high, among grass. Only a few breed here now." This egg, considerably stained and seemingly unmarked, measures 134 × 76 mm. How it

arrived here unbroken is a marvel, as it was half out of the box when I received it from the postman ! !]

THALASSARCHE MELANOPHRIS MELANOPHRIS (Temm.). **Black-browed Mollymawk.**

This bird is found off South Africa and the Atlantic and Indian Oceans; breeding at the Falkland and Kerguelen Islands. It includes *belcheri* from Kerguelen and *richmondi* from the west of South America as synonyms, and is replaced by *impavida* from the Australian waters.

It is figured by Gould, vol. vii, pl. 43, 1844; and Godman, pl. 97, 1910; and I figured the Australian form in vol. ii, pl. 96, 1912.

This bird was not found on Gough Island (Clarke 1), but was collected on Tristan. Lowe and Kinnear (7) give a coloured figure of the head, and say that this bird settles on the water when things are thrown overboard, and then from that position dives completely under after them if necessary. It dives into and under water with three-quarters expanded wings, coming up with the wings still half open. After examining and measuring a long series, they admit two subspecies as above. It appears not to breed on Tristan.

[This species does not seem to have been recorded by any writer from the Tristan group, nor is it recognized by the inhabitants. But there is a single skin in the collection sent me by John Glass and Tom Rogers in 1919 which seems to be the first obtained there. However, the *Quest* Expedition state that it was seen at Gough Island, and also at the Tristan group in May 1922. So that it is not unlikely that it breeds unobserved on one of the islands.

Eggs of the typical form from the Falkland Islands, where it breeds plentifully, are rather narrow as a rule, the spots and blotches being more liver-coloured than red. Eight eggs average 105 × 66 mm.

It is interesting to note that the eggs of these three species can be separated in a series with fair certainty. Those of *T. chlororhynchus* being the smallest, while *P. f. fusca* eggs are much wider, and those of *T. melanophris* average considerably longer.]

THALASSARCHE CHLORORHYNCHUS CHLORORHYNCHUS (Gm.). **Yellow-nosed Mollymawk (Mollyhawk).**

From the Cape all over the Southern Ocean, this bird is seen at some season of the year. It breeds on the Tristan Group, probably Nightingale Island, where it was found resting (Wilkins 4) on the grass in an open glade near the summit of that island. It was quite tame and allowed itself to be caught.

It is figured by Gould in vol. vii, pl. 42, 1844; by Godman, pl. 102, 1910; and by myself in vol. ii., pl. 98, 1912. The form *carteri* was also figured by Godman, pl. 102A, and myself, pl. 99. Lowe and Kinnear (7) consider that there are only two forms of this bird, and put *eximius* from Gough Island, and *carteri*, an accidental visitor to west coast of Australia, as synonyms. The Australian subspecies they call *bassi*, and give the reason for their decision.

Australia.—Adult: head, entire neck and underparts pure white; mantle greyish brown; ocular streak and loral smudge faint. When freshly moulted a slight tinge of bluish grey suffuses the sides of the head, nape and hind neck.

Tristan da Cunha.—Top of head white; sides of face, nape and hind neck

very distinctly washed with grey ; chin, throat and underparts white ; mantle greyish brown ; ocular streak and loral smudge of a darker and more decided tone.

Moseley, writing of this Mollymawk (*chlororhynchus*) from Nightingale Island, says that it is about the size of a goose, the bill is black with a yellow streak on the top and with a bright yellow edge to the gape, which extends right back under the eye. Carmichael says that when irritated the feathers of its cheeks are separated, so as to display a beautiful stripe of naked orange skin, running from the corners of the mouth towards the back of the head, which is a continuation of the gape.

It seems strange that well over a century has passed and still we have no drawing showing this yellow line.

" The birds make a cylindrical nest of tufts of grass, clay and sedge, which stand up from the ground. The nest is neat and round. There is a shallow concavity on the top for the bird to sit in, and the edge overhangs somewhat, the old bird undermining it during incubation by pecking away the turf of which it is made. The nest is fourteen inches in diameter and ten inches high. The bird lays a single egg, elongate, with one end larger than the other, as are all albatross eggs.

" The egg is held in a sort of pouch, whilst the bird is incubating. Thus the bird has to be driven right off the nest before it will drop the egg out of its pouch.

" The birds, when approached, sit quietly on their nest or stand by them and never attempt to fly ; indeed, they seem, when thus bent on nesting, to have almost forgotten the use of their wings.

" When bullied with a stick or handled on the nests, the birds snap their bills rapidly together with a defiant air, but they may be pushed or poked off with great ease. Usually a pair is to be seen at each nest, and then by standing near a short time one may see a curious courtship going on.

" The male stretches his neck out, erects his wings and feathers a bit, and utters a series of high-pitched, rapidly repeated sounds, not unlike a shrill laugh ; as he does this he puts his head close up against that of the female.

" Then the female stretches her neck straight up and, turning up her beak, utters a similar sound, and rubs bills with the male again. The same manœuvre is constantly repeated.

" Sometimes they nest right in the middle of a penguin road, or they take up their abode in separate pairs anywhere in the rookery, or under the trees where there are no penguins, which latter situation they seem to prefer."

[Local names, "Mollyhawk" or "Mollymawk." This appears to be the common Albatross in the group, and occurs in large numbers on all three islands ; and although Mrs. Rogers states that the flesh is very strong and unpleasant, many are eaten by the people. They are hunted from January to March, and in 1923, while 2,139 were taken in January, no less than 4,800 were killed in March. The Rev. H. M. Rogers tried to keep statistics of the various birds' eggs taken for food, etc., during his stay.

They come to nest in August, lay during October, and leave again in April. The eggs are also used in large numbers for food, and on the 7th October, 1906, Mrs. Barrow writes : " Mollyhawk eggs are just in, and nearly every man has been out on the mountain after eggs. John Glass got 162. The men say that this bird never lays more than one egg each season. In time I fear that these beautiful birds will be driven from the island."

On the 6th February, 1907, she also says: "While sitting on the cliffs at Sandy Point, a pair perched within a few feet of us. They are exceedingly handsome birds, for the most part white, their bills black, with a bright yellow stripe down the middle. They have the most graceful movements, and this pair bowed, and clicked their bills together, and made love to each other in the most charming way. They cannot rise off flat ground unless there is wind, only from a hill or cliff edge. On the 5th January near the ponds among bushes and fern," she continues, "we came across a good many Mollyhawks sitting on their nests, which they seem to frequent after the young ones have flown. We also saw 1 or 2 of the young, which are covered with a fluffy blue down. While on the 24th of April, also near the ponds, we saw many young ones, sitting near their nests, and looking white in the undergrowth." There are several large breeding colonies on Tristan, the nests being cones of peat, etc., placed among the bushes and fern, specially near the ponds and above the base.

The single egg is more or less dusted and freckled, or ringed with reddish spots at one end. Twenty eggs average 96·5 × 62·5.

They also breed at Inaccessible. While at Nightingale Island the Rev. H. M. Rogers wrote, on the 31st January, 1924: "The Mollymawks thrive here, both in the tussac and in the open valleys, as well as on the cliffs. I saw one rookery in a beautiful but swampy valley, containing over 500 of these handsome birds, right in the middle of the island."

Three skins have been sent me from Tristan.]

[THALASSARCHE CHRYSOSTOMA Forster. Grey-headed Mollymawk.

The eggs of this bird were found on South Georgia (Wilkins 4) for the first time. Not recorded from the Tristan Group.

Young.—Just hatched. Light grey down, slightly darker on the wings, becoming darker with age. Bill dark horn-colour; iris light brown; feet light grey.

Nest.—Cone-shaped, twelve to fourteen inches high; about a foot wide at the top and about twenty inches at the bottom, with moss and earth, lined with grass.

The nests are used each year for breeding purposes. The young birds have to be pushed off, in order that the parents may lay a new season's egg.

Egg.—Clutch one, dull white; average measurements 101 × 74 mm.

Breeding Season.—December and January, South Georgia. Young hatched on January 1st.]

Although this form does not occur on the Tristan Group, it is included for comparison.

PHOEBETRIA FUSCA FUSCA (Hils.). Sooty Albatross (Pe-o).

This species and the former (*chlororhynchus*) were described as nesting on Tristan as far back as 1818. The bird is figured by Gould, vol. vii, pl. 44, 1848; Godman, pl. 103, 1910; and I figured it in my *Birds of Norfolk and Lord Howe Islands*, pl. 41, 1928.

It is reported as breeding on Gough Island (Clarke 1), bill "dark, with a yellow stripe on each side." It is common, but does not breed in rookeries: it places its nests separately on cliffs or projecting rocks, where it is most difficult

to get at them. The bird commences to lay by the middle of September, and while sitting keeps up a continual cry similar to that of a young goat. This is the only Sooty Albatross seen at Tristan (Wilkins 4), although a watch was specially kept for *palpebrata*. Lowe and Kinnear (7) give a coloured figure of the head of *palpebrata*. In the *A.O.U. Check List*, 1931, p. 366, *auduboni* is considered a South Pacific Ocean bird, and therefore becomes a synonym of *P. palpebrata huttoni*.

[Local name, " Pe-o " or " Pe-ho." Common on Tristan, though not nearly so numerous as *T. chlororhynchus*. It comes in to nest in August and leaves again in April. This species, which is well known to the natives, is described as a " brown bird with yellow on the bill."

I received two Tristan skins in 1819.

They breed on the island during October in some numbers, but not in large colonies in the grass and fern like the " Mollyhawk," the cone-shaped nest being usually placed in dangerous situations on the edge of cliffs on the coast or inside the crater on the mountain.

Curiously enough, I have no records from either Inaccessible or Nightingale, though they probably occur there too.

Eggs vary in shape and size, some being almost unmarked, while others are spotted, ringed or speckled with reddish.

Eight eggs average 100 × 67.]

ATLANTISIA ROGERSI Lowe. Tristan Rail (Island Cock).

We owe the discovery of this bird to the Rev. H. M. C. Rogers, acting Resident-Chaplain on Tristan da Cunha, who forwarded two skins to the British Museum in 1923. Later he forwarded the body of a bird in spirits.

Dr. P. R. Lowe described it as a new genus and species, and later (*Ibis*, 1928) gave an exhaustive monograph, with a coloured figure. He says that it is the smallest flightless bird known to exist, or to have existed. It is said to live in burrow, under the talus slopes on Inaccessible Island, and to be a fast runner.

In the *Bulletin of the British Ornithologists' Club*, vol. xlviii, p. 121, July 10th, 1928, Lord Rothschild described the eggs.

Clutch three (?); greyish milk-white tinged with buff; dotted all over sparingly with rather small chocolate-rufous spots and underlying ones of lavender-mauve; all markings are considerably more concentrated round the apex. The measurements are 35 × 25 mm.

The eggs are typical Rail's eggs and very large for the size of the bird, and almost indistinguishable from some varieties of the eggs of *Crex crex*.

Breeding season, October and November.

Mrs. Rogers (12) says that it can run with great speed, shelters in the tussocks and lives in a burrow.

This bird occurs only on Inaccessible Island, where Mr. Philip Lindsay discovered the nest in 1927 and 1928.

[Local name, " Island Cock."

On the 2nd February, 1923, the Rev. Rogers visited Inaccessible with three boats' crews and succeeded in obtaining two specimens, now in the British Museum. He described this Rail as unable to fly, but runs with great speed, and shelters in the tussac. It lives in a burrow, and feeds on insects and worms.

Tom Rogers sent me a single skin, now in the Royal Scottish Museum, labelled "'Island Cock,' Inaccessible Island, 5th May, 1923. They are the hardest little birds to catch."]

PORPHYRIORNIS NESIOTIS NESIOTIS (Sel.). **Tristan Coot.**

This bird is figured at the original description; and notes on the Gough Island subspecies are quoted in the *Ibis* (Clarke 1) under the name *P. comeri* Allen. The two forms are very similar.

LARUS DOMINICANUS DOMINICANUS Licht. **Southern Black-backed Gull.**

This bird ranges from South Africa to Kerguelen; South America and the Southern Ocean; Tristan, Gough Island, etc., and is represented in New Zealand by a subspecies *antipodus*, which is figured by Buller in his first edition, pl. 20. The typical form is figured in Gray and Mitchell's *Genera of Birds*, vol. iii, pl. 180, 1845.

It is not recorded from Gough Island (Clarke 1), but breeds on Laurie Island, South Orkney Island (Clarke 2), where some remain all the year round, the return of the spring immigrants commencing in mid-October. The birds were paired on 3rd November and the first eggs laid on the 15th. The first young mentioned, 19th December. Fresh eggs marked on 3rd December were found chipped on the 28th, an incubation period of about twenty-five days. Young in down as late as 30th January.

"The nests were placed on raised beaches, small screes and rocks within a few yards of the shore. The nest was a well-built structure of seaweeds, mosses, lichens and feathers, and was usually surrounded by great quantities of limpet-shells, this mollusk being evidently a favourite food of the bird. The eggs were usually two in number, but sometimes three and occasionally only one. Wilkins (4) did not consider that they nested on Nightingale Island, although he procured an immature male there on 21st May, 1922."

The New Zealand eggs (clutch two or three) vary from green to stone and dark stone, with large dark and pale-brown blotches, chiefly at the larger end, and measure 69–72 × 47–50 mm. It breeds in scattered colonies on shingly river beds and coastal rocks and beaches. The nest is sometimes a mere hollow in the sand, with a few pieces of grass or sedge as lining; at others they are large and made entirely of leaves. The upper portion of the nest is composed of dry leaves; the base consists of more or less decomposed leaves and earth—apparently the birds forming a new nest on the old one of the year before. November is the usual laying month and three the most common number of eggs (Oliver 9).

[Surprisingly little seems to be known in Tristan regarding the status of this species, and I have only received a single immature skin in the collections sent.

However, the *Quest* Expedition, on the 21st May, 1922, saw many immature birds at Nightingale Island, and obtained one, a juvenile male of the year, which they thought must have been bred on the island, as it seemed much too young to have travelled any great distance. But no adults were seen, and the natives, when questioned, did not think that any bred in the group, although adults were sometimes observed. This species is very destructive to eggs and young of other birds, and will also attack a weakly lamb. I have no Tristan eggs, but in Appendix II in Mrs. Rogers' book, in the list of Natural History specimens

collected by them at Tristan, and now in the British Museum, appears No. 6 egg of the Southern Black-backed Gull (*Larus dominicanus*), but I fear some mistake.

The nest is placed on a rock, or near the shore, and is composed of dry grass, or seaweed. Two or three eggs are laid, generally stone-colour spotted with brown and black. This species has a very wide breeding range. C/2 from Cape Colony measure 75 × 48 and 72 × 49. A e/3 from Buenos Aires are 74·5 × 50, 70 × 49·5, 60 × 52. C/2 from Megellanes measure 70·5 × 52 and 69·5 × 50. A e/3 Falkland Isles are 73 × 51·5, 73 × 52, 74 × 51. But a e/2 *Larus d. antipodus* from New Zealand are very dark narrow eggs and measure 72 × 47 and 70 × 47.

CATHARACTA ANTARCTICA ANTARCTICA (Less.). **Antarctic Skua (Sea-hen).**

This hawk amongst gulls frequents the southern area, breeding on the Falkland Islands ; it occurs at Gough Island and Tristan, and has wandered to Australia. The Indian Ocean form, *intercedens*, breeds in Kerguelen ; *clarkei* occurs in the South Orkneys, South Shetlands and South Georgia ; *lonnbergi* is the Austro-New Zealand bird ; and *maccormicki* is from Antarctica, breeding at Victoria Land.

I have figured the Austro-New Zealand form in my *Birds of Australia*, vol. ii, p. 122, 1913, and *maccormicki* in my *Birds of Norfolk and Lord Howe Islands*, pl. 42, 1928, and the Australian example of the typical bird in the Supplement not yet published. On Gough Island they commence to lay in the middle of September (Clarke 1) : when the Penguins lay, the Sea-hens come ashore in large numbers and get their living by robbing the nests and catching the young. They also kill the young albatrosses. They nest on Laurie Island, South Orkney Islands (Clarke 2). They leave during the winter months after 28th April and return on 16th October. The first eggs were laid on 2nd December and young were out by 22nd January. By 11th February dark feathers were appearing on the wings and sides of the breast of those youngsters. Incubation period about six weeks ; next year, 1904, they returned on 21st October, and the first eggs were found on 27th November.

" The nests were usually placed on the tops of mossy rocks, or on plateaux from 100 to 400 feet above the sea, and consisted of well-made hollows in the moss, while teased-out fragments of moss formed the lining. Occasionally nests were found on the tops of moraines and were then hollows in the earth lined with lichens.

" The eggs were two in number, on which the bird sat very close, her mate usually remaining near at hand. When approached, the owners screamed defiance and the sitting bird had to be forcibly ejected from the nest. The nests were surrounded by many shells of eggs and remains of young penguins. The young soon wandered from the nest and were most difficult to detect among the moss. Wilkins (4) said that they were seen in great numbers about each island of the Tristan group."

Lowe and Kinnear (7) have published eleven pages on this bird, five of which deal with measurements ; they make all forms subspecies of *Catharacta skua* and admit seven forms. They go carefully into the plumages, from the cinnamon-red to the straw or lighter-coloured feathers.

[Local name, " Sea hen." This well-known species is resident and plentiful on all three islands. They are great robbers and devour the eggs and young of

other species, and Mrs. Barrow has seen them attack and kill a weakly lamb more than once.

I have received four or five skins, one of which is dated 17th April, 1923. Antarctic Skuas breed during August and September, singly as a rule, and the nests are just scrapes lined with a little grass or weed, and placed near the shore. Two eggs are laid, showing considerable variation, even in a clutch, being pale olive, greenish, or dark brownish, more or less spotted with dark brown at the larger end, and rather dumpy in shape. Ten eggs are very uniform in size and average 70 × 51, while four eggs from the Falkland Islands average 69·5 × 49, being slightly shorter and distinctly narrower. For comparison, 100 eggs of the British bird average 70·59 × 49·37.]

STERNA VITTATA VITTATA Gmel. **Sub-Antarctic Tern (Kingbird).**

This bird occurs in the South Atlantic and Indian Ocean and off South Africa ; it breeds on St. Paul's Island and Tristan da Cunha, and is represented in New Zealand by the subspecies *bethunei*. The typical form is from Christmas Harbour, Kerguelen. I have figured it in the Supplement to my *Birds of Norfolk and Lord Howe Islands*. It occurs in Gough Island (Clarke 1 and Wilkins 4).

[Local name, "Kingbird." Of this species Nicol writes, 17th January, 1906, "Very like our common Tern, and judging from the numbers of young just able to fly, there must be a considerable nesting colony." While all that Mrs. Barrow says about them is : "Comes in September, and lays in November." I have received several skins, two of which, one adult and the other immature, were shot at Tristan on the 15th February, 1923. All my eggs come from Sandy Point, on the east side of the island, but they may breed elsewhere. One or two eggs are laid on the bare sandy ground, with a few straws at times for lining. Six eggs taken on the 14th November, 1923, and 16th November, 1924, average 46 × 32 mm., the largest being 47·5 × 33. Four are stone colour with small grey, brown and blackish spots, mostly at the larger end, while two are much darker and more heavily spotted.]

ANOUS STOLIDUS STOLIDUS (L.). **Noddy (Wood Pigeon).**

This Tern is distributed throughout the tropical seas, in the Atlantic Ocean breeding at St. Helena, Ascension and Tristan ; off Africa from the Gold Coast to the Congo. The Indian Ocean has the subspecies, *rousseaui*, from Madagascar ; *plumbeigularis* occurs in the Red Sea ; *pileatus* is from the Philippines, Liu Kiu Islands and China ; *unicolor* from the South Pacific ; *galapagensis* from the Galapagos Islands ; *ridgwayi* from the west coast of Mexico ; and the Australian bird is *gilberti*, of which *antelius* is a synonym. Gould figured it in vol. vii, pl. 34, 1846, and I in vol. ii, pl. 115, 1912. It occurs on Gough Island (Clarke 1) and nests at Tristan.

[Local name, "Wood Pigeon." Comes in September, lays in November, but goes away for the winter. This species seems rather scarce at Tristan, although I have received one or two skins. On the 14th November, 1907 Mrs. Barrow writes: "My husband and Rapetto went off to the 'Hardies,' some rocks, in the sea, beyond 'Hottentot Point,' in search of 'Wood Pigeons,' eggs. This is a seabird, in spite of its land-sounding name. They had to swim to a high rock a short distance from the shore, and then climb to the top of it. It was

rather too early for eggs, and they only found one, but satisfied themselves of its identity. These rocks, the 'Hardies,' are the only actual nesting-places that I know of, though there are probably others, and only a few breed there." These eggs, taken on the 24th November, 1923, and 20th November, 1924, at these rocks measure 51 × 35, 49 × 36 and 48 × 34; two are slightly spotted with grey and reddish brown, while the middle one is almost unmarked.

The Rev. H. M. Rogers reported large numbers on Nightingale Island on the 31st January, 1924, and remarks: The 'Wood Pigeon' is a big bird, black and grey, with a long beak, and utters a rather cawing note."]

MEGALOPTERUS MINUTUS ATLANTICUS Mathews. **White-capped Noddy.**

This form occurs in the Atlantic, breeding on Ascension Island, St. Helena and Inaccessible Island. The Australian form is *minutus* and the Philippine one is *worcesteri*; Marcus Island has *marcusi*; while from Cocus to Clippeaton *diamesus* occurs; and *americanus* is from the Caribbean Sea.

Gould figured it in vol. vii, pl. 36, 1846, and I in vol. ii, p. 117, 1912.

[It is stated in the *Syst. Av. Aethiop.* i, p. 155, 1924, that it occurs on Inaccessible Island of the Tristan group.

No skins have been sent me, nor have I any record of it, but I do not think that the Islanders can distinguish between these two rather similar Noddies, even though their nests are so unlike. Mr. Rogers does not mention any Noddy at Inaccessible, though on the 31st January, 1924, here marks on the large numbers seen at Nightingale Island.

The nest is composed of fresh seaweed slightly hollowed and firmly cemented to the branch of a tree or side of a rock.

The egg is whitish stone with a few grey dots, the larger end being spotted with reddish brown. It measures 45–47 × 31·5–33.

I have one very small Noddy egg, only 47·9 × 34, with a few grey and brownish dots at the top, taken 18th November, 1917, in the group.]

NESOCICHLA EREMITA EREMITA Gould. **Tristan Thrush (Starchy).**

NESOCICHLA EREMITA GORDONI Stenh. **Inaccessible Island Thrush.**

The typical form is confined to Tristan and is said to be extinct; a subspecies occurs on Inaccessible and Nightingale Islands. In the *Challenger Report*, p. iii, we are told that seven skins were collected on Tristan, and the coloured figure on pl. xxiii was made for the first time. A cut of the leg, wing and bill from the above is also given. The subspecies *gordoni* was collected on Inaccessible as told by Stenhouse. The sexes are alike. They are found in all parts of each island (Wilkins 4). They seemed to prefer the more open glades, where the tussock grass grows rankly. More often than not they perched on the branches of trees when disturbed in feeding on the flies and insects found by the edge of streams and near the beach. They were not seen on Gough Island.

In *Cat. Birds Brit. Mus.* vi, p. 332, 1881, Sharpe considered this a true Thrush, which Seebohm had not admitted in vol. v., p. 404, 1881. In *Ibis* for 1923, pp. 523–9, Dr. P. R. Lowe has given us a detailed account of the structure, and gives a text-figure of the peculiar tongue, the sternum and a front and back

view of the pterylosis. And on pp. 528–9 gives measurements of the wing, bill and tarsus of examples from the three islands in the group. The Tristan bird is smaller in the wing, and is paler and more fulvous than those from the other two islands, which are similar to each other (*gordoni*).

[Local name, "Starchy." On the 10th August, 1907, Mrs. Barrow writes: "William to-day brought in a bird which he calls a 'Starchy,' but which is just like our old friend the garden thrush. He says that there are lots on the hill. They have no song." In Mrs. Rogers' book there is no mention of it at Tristan. When the *Quest* called there in May 1922, it was reported to be extinct. So that the two Tristan specimens I received in 1919, and now in the Royal Scottish Museum, are probably among the last of their race. No eggs seem to be known from Tristan.

In 1924 the late Surg.-Admiral J. H. Stenhouse separated this race from the Tristan form on the strength of larger size, darker plumage, and especially the larger, deeper bill. The three skins sent were collected at Inaccessible on the 26th April, 1923, where the bird is still plentiful; it also occurs at Nightingale. Eggs, though described to the *Challenger* Expedition in 1873 by the Stoltenhoff brothers, were unknown until 1923, when the Rev. H. M. Rogers discovered two nests on the 3rd February at Inaccessible. The nests were cup-shaped, of various dry grasses, etc., one in tussac and the other in an "island tree." The eggs are blue with rusty spots and freckles. Both nests contained two eggs, No. 1 measuring 29 × 23 and 29 × 22, while No. 2 is 31 × 21 and 29 × 22, one egg being rather elongated.]

NESOSPIZA ACUNHAE ACUNHAE Cab. **Tristan Bunting (Canary).**

NESOSPIZA ACUNHAE QUESTI Lowe. **Nightingale Island Bunting.**

The first occurred only on Tristan, where it is believed to be extinct and the latter still lives on Nightingale Island.

The typical form is figured in the *Challenger Report*, pl. xxiv, from Inaccessible, and on p. 112 a cut of the foot, wing and side view of the head is given.

This bird was described in 1873 by Cabanis from an old skin acquired by the Berlin Museum, from the sale of the Bullock collection.

This bird "builds in the bushes, and lays four or five eggs very like those of the Common Canary." Wilkins (4) says that the birds are very tame and are found in considerable numbers in all parts of the two islands, Nightingale and Inaccessible. On the beaches and the uplands they were feeding on the flies and insects found in damp places; also on the seeds of tussocks grass. Lowe (5), working up this material, p. 519, gives an account of the bird, and on p. 520 described a new subspecies from Nightingale, and on p. 521 gives measurements of the Inaccessible and Nightingale Island birds, showing the smaller size of the latter; on p. 522 is a text-figure of the head and wing of this and *wilkinsi*.

The bird described by Cabanis at the same time as the above, that is *Crithagra insularis*, in the *Journ. f. Ornith.* 1873, p. 153, as supposed also to be from Tristan, has been a stumbling-block to many. However, Dr. E. Stresemann, who has examined the type, tells me that it is a synonym of *Serinus flaviventris* (Swainson 1828) from South Africa, and the locality guessed (cf. *Ornith. Monatsber.* 1923, p. 142). *Crithagra* of Swainson, in *Cat. Birds Brit. Mus.* xii, p. 348, 1888, is placed as a synonym of *Serinus*, but it may be a good genus.

NESOSPIZA WILKINSI Lowe. **Nightingale Island Large Bunting.**

This new species from Nightingale Island is a giant of the former bird. It has the same colouring as the others (*questi*), but is a much bigger and heavier bird in every way (Wilkins 4). Lowe, in the *Ibis* for 1923, p. 521, described it as a new species ; the drawing of the head and wing on p. 522 will show that it differs from *Nesospiza* in the formation of the bill.

IONORNIS MARTINICA (L.). **American Purple Gallinule.**

In *Bull. B.O.C.* xliv, p. 72, 1924, Dr. Percy R. Lowe records that he had received at the British Museum, from the Rev. H. M. C. Rogers, an immature example of this bird, which had been taken on the island of Tristan da Cunha. This is the first record for the island. A second example is recorded by Stenhouse in the *Scottish Naturalist* for 1924, p. 96.

In the *Birds of Massachusetts*, vol. i, November 1925, p. 364, Forbush has given a good description, and on pl. 24 a coloured figure of the adult in breeding plumage. He says that it breeds in swamps and marshes, and the nest is a platform of rushes, etc., like a shallow basket suspended among, and woven into, marsh vegetation.

Eggs.—Clutch 6 to 10, soiled white, creamy or pale buff, sparsely spotted, chiefly about the larger end with brown, umber and neutral tints. They measure 1·63–1·54 × 1·16–1·13 inches.

Breeding season, April to June (October).

Incubation period, 23 to 25 days.

In the " Life Histories of North American Marsh Birds," *Bulletin* 135, p. 339, 1926, A. C. Bent gives a delightful account of this bird. He says that the clutch is 6 to 8, usually ovate in shape, and the shell is smooth with little or no gloss. Pale cinnamon-pink or pale pinkish buff to cartridge-buff. They are lightly and unevenly marked, with very small spots and fine dots of bright browns and pale drabs. Average measurements of 56 eggs, 39·2 × 28·8. Extremes, 42·7 × 30·2, 39 × 30·2 and 34·6 × 26·2.

Breeding months, April, May and June.

[Two have been obtained at Tristan, and seem to be the only specimens recorded from the Aethiopian Region.

An immature specimen of this species was included among the skins sent me in 1919. It was obtained (date not recorded) by Tom Rogers, who wrote : " It is the only one we ever saw on the island, and I only got it by chance when going to the other side of the island called the ' Rooky.' I did not have a gun, but knocked it down with a stone." A second specimen, also immature, was obtained by the Rev. H. M. Rogers at Tristan, and is now in the British Museum.

These birds must be " some travellers," when immature specimens can cross the 2,000 miles of ocean to Tristan.]

THE LYMANTRIIDAE OF THE MALAY PENINSULA.

BY C. L. COLLENETTE.

(Plates I and II.)

I HAVE been aware for some time past that the Malayan LYMANTRIIDAE had been much neglected, and in going through the material in the British Museum, the majority of it collected by H. N. Ridley in Singapore, it further became evident that several species were misidentified and that in some cases ♂♂ of one species were associated with ♀♀ of another.

An analysis of localities given in the Indo-Australian section of Seitz showed Java to have been credited with 77 species, Borneo with 69 and the Malay Peninsula with only 39, while Van Eecke in his *Heterocera van Sumatra* (*Zool. Med. Leiden*, Deel xi, p. 78, 1928) reached a total for that island of 91 species.

The present paper, undertaken mainly to fill the evident deficiency, gives a total for the Malay Peninsula (excluding Peninsular Siam) of 153 species, of which 49 are new.

This advance has been rendered possible by a generous response to my appeal for material, a large collection having been received from the F.M.S. Museum, Kuala Lumpur, the great majority of the specimens obtained by the personal collecting of Mr. H. M. Pendlebury, who has worked " light " in a very thorough manner in a number of localities.

I have worked through the British Museum collection and that of the Zoological Museum, Tring, and am grateful for the loan of insects from the Hope Department, Oxford University Museum ; the Zoological Museum, Berlin ; and the Imperial Institute of Entomology (Malayan Agric. Dept.).

Although I believe that the specimens examined are fairly representative for the neighbourhoods of Penang, Kuala Lumpur and Singapore, it is evident from the number of species represented by single specimens that many more forms remain to be discovered in the hills, both in the interior and near the coast. I have drawn attention in the text to a number of deficiencies, especially of cases in which one sex of a species is well known and the other sex undescribed.

By a careful examination of type specimens, of which I have seen nearly all, it has been possible to clear up a number of difficulties which have puzzled earlier workers who did not have access to the types.

A number of specimens in the collection, especially in the genus *Leucoma*, have been left unidentified, by reason of their poor condition. Without doubt new species are present among these, but I have refrained from making types out of rubbed and damaged material unless some easily recognized marking or characteristic existed to make the description intelligible.

Although Seitz's *Grossschm. d. Erde* has given us a foundation, much work still remains to be done on the generic classification of the *Lymantriidae*. In the present paper I have in some cases refrained from corrections which will eventually have to be made, because such corrections would involve many other species quite outside the scope of the paper. At the present time it is hardly possible to examine a *Lymantriid* and run it down to its genus. So many species

are out of place, so many genera badly defined and so many divergent opinions expressed as to the types of the genera, that I have sometimes hesitated from expressing my own opinion for fear of adding to the confusion. It is plain that this work must eventually be attempted as a whole rather than genus by genus. Each genus and each species must be critically examined, and I look forward to the time when I shall feel competent to attempt the revision.

In this paper the Comstock-Needham system has been employed for the wing-neuration, and Ridgway's *Color Standards and Color Nomenclature*, 1912, for descriptions of colour in new species.

I have to acknowledge my great indebtedness to Mr. W. H. T. Tams for advice and assistance during the writing of the paper, and wish also to pay tribute to the reliable work of Mr. van Eecke in the above-mentioned *Heterocera van Sumatra*, which has considerably lightened my labours.

1. **Leucoma singaporensis** Strand.

Leucoma singaporensis Strand, in Seitz, *Macrolep. of the World*, x, p. 310, pl. 39b (1914).

Type, ♂, Singapore, in coll. Seitz.

11 ♂♂, 2 ♀♀, Singapore ; 1 ♀, Penang ; in British Museum. 2 ♂♂, Penang ; 1 ♂, Padang Rengas ; 1 ♂, Gunong Ijau ; in Tring Museum. 1 ♀, Perak ; in Zoological Museum, Berlin. 2 ♂♂, Singapore ; 1 ♂, near Jitra, Kedah ; 1 ♂, 3,500 ft., Lubok Tamang, Pahang ; in F.M.S. Museum.

The original description of this species appeared in the English edition of Seitz, where it is dated 14.xii.1914. The corresponding page in the German edition was not published until 31.iii.1915.

The greenish hue in the veins of the forewing, noted by Strand as present in the ♂, is visible also in the ♀.

2. **Leucoma discirufa** Swinh.

Leucoma discirufa Swinh., *Trans. Ent. Soc. Lond.*, p. 384 (1903) ; Seitz, *Grossschm. d. Erde*, x, p. 309, pl. 39b (1915).

Type, ♂, Pulau Laut, S.E. Borneo ; in British Museum.

1 ♂, at light, 11.iii.1924, Kuala Lumpur (E. Seimund) ; in F.M.S. Museum.

The single Malayan ♂ is much worn and discoloured, but agrees well in structure with the type, and can be assigned to this species with some confidence. In the F.M.S. Museum is a further ♂ of the species from Khao Luang, Peninsula Siam.

[**Leucoma lactea** Moore.]

Redoa lactea Moore, *Lep. Coll. Atk.*, p. 46 (1879).
Leucoma lactea Moore, Seitz, *Grossschm. d. Erde*, x, p. 309, pl. 39a (1915).

Type, ♀, Darjeeling, in Berlin Museum (see remarks in Seitz, *l.c.*, p. 309). Paratype ♀, Darjeeling, in British Museum.

A single ♀, with the printed label "Singapore," is in the F.M.S. Museum, and appears exactly to match the paratype ♀ from Darjeeling. As *L. lactea* is large and conspicuous, and does not appear to have been recorded previously from Malaya or the East Indies, it seems best to regard this locality label with suspicion, and not to include the species in the Malayan list for the present.

3. **Leucoma ecnomoda** Swinh.

Leucoma ecnomoda Swinh., *A.M.N.H.* (7), xx, p. 77 (1907); *id.*, *l.c.* (8), xviii, p. 215 (1916) (♀); Seitz, *Grossschm. d. Erde*, x, p. 309 (1915).

Holotype ♂, Java, in British Museum. Neallotype ♀, Sumatra, in British Museum.

2 ♂♂, 1 ♀, Singapore; in British Museum. 1 ♂, Tengah Mts., Pahang; in Tring Museum. 4 ♂♂, Singapore; 5 ♂♂, Pulau Pisang, Johore; 4 ♂♂, 2 ♀♀, Kuala Lumpur; 3 ♂♂, 3,500 ft., Bukit Kutu, Selangor; 1 ♀, 3,200 ft., Kedah Peak; in F.M.S. Museum.

I have compared specimens from Java, Sumatra and Malaya, and can see no difference in facies or the ♂ genitalia which would justify their separation.

Van Eecke, in *Zool. Med. Leiden*, xi, p. 141 (1928), has sunk *L. ecnomoda* to *L. saturnioïdes* Snell (1879), which latter species was described from a ♀ from Takalar, Celebes. In the British Museum are two Celebes ♂♂, one of them from Macassar close to Takalar, and evidently of this species. These two ♂♂ are larger (40–41 mm.) and paler than ♂♂ of *L. ecnomoda*, and in both fore- and hindwing the hyaline portion approaches nearer to the termen. Moreover, the genitalia of the Macassar specimen appear distinct from those of Javanese *L. ecnomoda*, with, among other distinctions, plainly marked serrations down the dorsal margin of the valve in the former, which are present only in a very diminished form on a portion of the margin in *L. ecnomoda*. I have therefore treated *L. ecnomoda* Swinh. as a separate species from *L. saturnioïdes* Snell.

Van Eecke has also stated (*Ent. Ber.*, vi, p. 176, 1923) that he considers *L. fenestrata* Hamps. (1893) and *L. thyridophora* Hamps. (*Fauna of Br. India*, i, p. 488, 1893) to be one and the same species. There is here an unfortunate similarity of name to *L. thyridoptera* Hamps. (*Journ. Bombay Nat. Hist. Soc.*, xx, p. 114, 1910), which has caused confusion. I have published my conclusion (*A.M.N.H.* (10), vii, p. 510, 1931) that *L. thyridoptera* Hamps. sinks to *L. fenestrata* Hamps., as they are plainly the ♀ and ♂ of the same Ceylon species. *L. thyridophora* Hamps., of which the type ♀, Sikkim, is in the Tring Museum, is a rare insect, of which I have seen no ♂♂, and it seems best to retain it as a separate species until specimens of this sex can be studied.

4. **Leucoma perfecta** Wlkr.

Redoa perfecta Wlkr., *Journ. Linn. Soc. Lond.* (*Zool.*), vi, p. 128 (1862).
Leucoma perfecta Wlkr., Seitz, *Grossschm. d. Erde*, x, p. 309 (1915).

Type, ♂, Sarawak, in Oxford Museum.

3 ♂♂, Penang; 5 ♂♂, Singapore; in British Museum. 3 ♂♂, Bukit Kutu, Selangor; 1 ♂, Gunong Tahan; 2 ♂♂, Penang; in Tring Museum. 11 ♂♂, Kuala Lumpur; 1 ♂, 2,000–2,700 ft., Gunong Angsi, Negri Sembilan; 1 ♂, Pulau Pisang; 15 ♂♂, 3,450–3,500 ft., Bukit Kutu, Selangor; 1 ♂, Gintang Sempak, Pahang; 2 ♂♂, 4,000–4,200 ft., Fraser's Hill, Pahang; 2 ♂♂, 4,800 ft., Cameron's Highlands, Pahang; 1 ♂, The Gap, Pahang; 3 ♂♂, 3,300 ft., Kedah Peak; in F.M.S. Museum.

Although the ♂ is evidently commonly taken throughout Malaya, the ♀ does not appear to be known. It must be a large and conspicuous insect.

In *Seitz*, x, p. 309, it is stated that *Leucoma divisa* Wlkr., *List Lep. Ins. B.M.*, p. 836 (1855), occurs at Singapore and Penang. This is probably a misidentifica-

tion of the present species. The type of *divisa*, a ♀ from Nepaul, is a *Euproctis* with a dark abdomen and yellow anal tuft, resembling *E. latifascia* Wlkr. (1855).

5. **Leucoma submarginata** Wlkr.

Redoa submarginata Wlkr., *List Lep. Ins. B.M.* iv, p. 826 (1855).
Leucoma submarginata Wlkr. Seitz, *Grossschm. d. Erde*, x, p. 310 (1915).

Type, ♂, Silhet, in British Museum.

1 ♂, 2,000–3,500 ft., Perak; in British Museum. 1 ♂, 2,000–3,000 ft., Gunong Ijau, Perak; 1 ♂, Ipoh; in Tring Museum. 4 ♂♂, Kuala Lumpur; 1 ♂, Ulu Lengat, Selangor; 3 ♂♂, 1 ♀, 3,400–3,500 ft., Bukit Kutu, Selangor; 1 ♂, Kuala Teku, Pahang; 1 ♂, 4,800 ft., Cameron's Highlands, Pahang; 1 ♂, Lankawi Islands; 1 ♀, near Jitra, Kedah; in F.M.S. Museum.

The type of *L. submarginata* has unfortunately lost the abdomen, but the Malayan insect appears to match it exactly in facies.

L. submarginata bears considerable resemblance to *Leucoma* (*Redoa*) *transiens* Wlkr. (1862), but appears to be distinct. The type of *L. transiens* is said in the original description to come from Sarawak, and this statement has been copied by Walker himself (*List Lep. Ins. B.M.* xxxii, p. 343), and also by Kirby and Swinhoe. The insect labelled as type in the British Museum is a ♂ answering to the original description, and on the pin is the printed name cut from vol. xxxii, p. 343. It also bears a label in Wallace's handwriting "Aru," and a museum label with "Aru Isl." on one side and "58.48" on the other, which latter corresponds to Wallace's Aru Island donation in 1858. The Sarawak collection was donated in 1857. After a careful but unsuccessful search in the British Museum for another specimen with which this type might have been confused, I have come to the conclusion that an Aru specimen was mixed with the Sarawak collection which Walker was describing, and that the type of *Redoa transiens* Wlkr. comes from the Aru Islands and not Sarawak.

6. **Leucoma hipparia** Swinh.

Leucoma hipparia Swinh., *A.M.N.H.* (6), xii, p. 213 (1893); Seitz, *Grossschm. d. Erde*, x, p. 310 (1915).

Type, ♂, Singapore, in British Museum.

In the material before me there are a number of ♂♂ from Malaya which cannot definitely be separated from this species by any external character. I have examined the genitalia of some eight specimens, and not only is it impossible to match any with *L. hipparia*, but they show great divergence among themselves. I have come to the conclusion that in this case the genitalia cannot be relied upon for separating the species, and that bred series should be obtained before further forms are described.

7. **Leucoma flavescens** Moore.

Redoa flavescens Moore, *Proc. Zool. Soc. Lond.*, p. 600 (1877).
Leucoma flavescens Moore, Seitz, *Grossschm. d. Erde*, x, p. 311, pl. 39c (1915).

Type, ♂, S. Andamans, in British Museum.

7 ♂♂, Kuala Lumpur; 2 ♂♂, 1 ♀, 3,500 ft., Bukit Kutu, Selangor; 1 ♂, 4,900 ft., Cameron's Highlands, Pahang; 1 ♂, 1,800 ft., Batang Padang, Perak; in F.M.S. Museum.

The type of *L. flavescens* is unique, and in rather poor condition. It appears to agree with the series from Malaya, but further material may show subspecific difference.

The ♀ exhibits the same pattern on the forewing as the ♂, but is less heavily scaled.

8. **Leucoma riguata** Snell.

Leucoma riguata Snell., *Iris*, viii, p. 138 (1895); Seitz, *Grossschm. d. Erde*, p. 310 (1915).

Type, ♂, Sumatra, in Leiden Museum.

1 ♂, Singapore; in British Museum. 1 ♂, 1 ♀, Penang; in Tring Museum. 2 ♂♂, Singapore; 1 ♀, Kuala Lumpur; 1 ♂, 3,400 ft., Bukit Kutu, Selangor; 1 ♀, Taiping, Perak; in F.M.S. Museum.

I have compared the two Malayan ♂♂ with a Sumatran ♂ determined by Mr. van Eecke, and they appear to be conspecific.

9. **Leucoma phrika** sp. nov. (plate I, fig. 23).

♂. Palpus slightly upturned, snuff-brown, mixed towards the base with white. Antennal shaft white, mixed towards the tip with snuff-brown; pectinations Sudan brown. Head bistre, the lower part of the frons whitish. Thorax and abdomen, above and beneath, white. Legs white; a patch of bistre proximally on tibia and tarsus of foreleg and tarsus of middleleg; distal segments of all tarsi pale orange-yellow. Forewing white, iridescent, with a "watered silk" effect over the whole wing; a small fuscous spot on the discocellulars; costa narrowly orange-buff; fringe white, between veins *R*4 and *Cu*2 Saccardo's umber, this colour also invading the wing area as interneural terminal patches. Hindwing white; fringe white at apex and anal angle, the remainder white mixed with Saccardo's umber. *Underside* of both wings white; fringes as on upperside.

♀. Resembles ♂, but with the forewing less iridescent; the orange-buff on the costa of forewing, and Saccardo's umber on termen and fringe of forewing and fringe of hindwing, almost absent.

Expanse: ♂♂ 26–29 mm., ♀♀ 32 mm.

1 ♂ (holotype), Penang, 2,260 ft., 27.iii.1898 (S. S. Flower); 1 ♂ (paratype), Singapore, 6.ii.1908 (G. Meade Waldo); British Museum. 1 ♀ (allotype), Kedah Peak, 3,300 ft., 25.iii.1928; 1 ♂ (paratype), Sungei Renglet, Pahang, 3,500 ft., 13.iii.1925; 1 ♂ (paratype), Tanah Rata, Cameron's Highlands, 4,800 ft., 20.v.1931; 5 ♂♂ (paratypes), Kuala Lumpur, February, April and October; 4 ♂♂ (paratypes), Bukit Kutu, Selangor, 3,500 ft., March and April; all taken at light by H. M. Pendlebury; 3 ♂♂ (paratypes), Bukit Kutu, 3,400 ft., August 1915; 1 ♂ (paratype), Ginting-Sempak Pass, Pahang, May 1927 (C. F. Constant); F.M.S. Museum. 1 ♂ (paratype), Bukit Kutu, 3,450 ft., April 1915; Tring Museum. Allotype presented to British Museum.

This species is considerably smaller than *L. riguata* Snell (1895), and has the "watered silk" effect on the forewing considerably more marked. It is also quite distinct from *L. flavescens* Moore (1877), which has no discocellular spot on the forewing.

10. **Leucoma poecilonipha** sp. nov. (plate I, fig. 27).

♂. Palpus slightly upturned, orange-buff, at the base whitish. Antennal shaft white, pectinations pinkish buff. Head tawny, the lower part of the frons whitish. Thorax and abdomen white, the latter thinly scaled. Legs, pectus and venter whitish, a patch of bistre proximally on tibia and tarsus of fore- and middleleg, distal segments of all tarsi orange-buff. Forewing white, covered with shining opalescent scales and in some lights showing a dull antemedial and postmedial fascia ; a conspicuous fuscous spot on the discocellulars ; distal half of costa orange-buff ; fringe white at apex and tornus, the remainder Saccardo's umber, this colour also invading the wing area as interneural terminal patches. Hindwing white ; a limited number of shining opalescent scales towards the anal angle ; fringe white at apex and anal angle, the remainder Saccardo's umber. *Underside* of both wings dull white ; costa of forewing, and fringes of both wings, as on upperside.

♀. Strongly resembles the ♂.

Expanse : ♂♂ 29–34 mm., ♀ 42 mm.

1 ♂ (holotype), Taiping, Perak (E. Seimund) ; 1 ♂ (paratype), Kuala Lumpur, 28.x.1921, and 1 ♂ (paratype), Bukit Kutu, Selangor, 3,500 ft., 16.iii.1931, both at light (H. M. Pendlebury) ; F.M.S. Museum. 1 ♀ (allotype), Ipoh, Perak (F. Hankin) ; Tring Museum. Holotype presented to British Museum.

This beautiful species is easily distinguished by the opalescent sheen, and may be placed near to *L. phrika* Collnt.

11. **Leucoma semihyalina** Swinh.

Leucoma semihyalina Swinh., *A.M.N.H.* (7), xiv, p. 421 (1904) ; Seitz, *Grossschm. d. Erde*, x, p. 310, pl. 39c (1915).

Type, ♂, Sumatra, in British Museum.

1 ♂, Kuala Ketil, Kedah ; in British Museum. 6 ♂♂, 4 ♀♀, Kuala Lumpur ; 1 ♀, Kuala Tahan, Pahang ; in F.M.S. Museum.

The ♀ closely follows the ♂ in markings, and has an expanse of from 29 to 38 mm.

12. **Leucoma camurisquama** sp. nov. (plate I, fig. 22).

♂. Palpus porrect or slightly upturned, Mars yellow. Antennal shaft whitish, pectinations cinnamon-buff. Head whitish, vertex Sudan brown. Abdomen above and beneath, pectus, and legs whitish, fore- and middleleg with a Brussels-brown spot frontally at the proximal end of both tibia and tarsus. Forewing shining white ; a small fuscous spot on the centre of the discocellulars ; beyond the end of the cell, and beyond the origins of veins *M*2 to *Cu*2, a "dull" patch caused by the scales being directed towards the apex and costa instead of towards the termen, almost at right angles to the normal direction ; when the wing is turned in a different direction the patch becomes bright and the remainder of the wing dull ; distal half of costa narrowly Mars yellow ; fringe Sudan brown, at the point of the apex, and between vein *Cu*2 and the tornus, whitish. Hindwing dull white ; fringe Sudan brown, from vein *M*1 to the apex and at the anal angle whitish. *Underside* of both wings dull white ; fringes as on upperside.

♀. Resembles the ♂, but with the forewing somewhat less shining.

Expanse : ♂♂ 28–34 mm., ♀♀ 36–41 mm.

1 ♂ (holotype), 1 ♀ (allotype), 3 ♂♂ and 1 ♀ (paratypes), Singapore (H. N. Ridley) ; 1 ♂ (paratype), 2,000–3,500 ft., Perak (W. Doherty) ; British Museum. 1 ♂, Penang (Curtis), and 1 ♂, Malay Peninsula (paratypes) ; Tring Museum. 1 ♂ (paratype), 7.ii.1924, Kuala Lumpur (E. Seimund) ; 1 ♀ (paratype), 27.xii.1922, Singapore (J. C. Moulton) ; 1 ♀ (paratype), at light, 4,200 ft., 2.vii.1931, Fraser's Hill, Pahang (H. M. Pendlebury) ; F.M.S. Museum.

I have examined a number of *Lymantriidae* which show "watered silk" markings on the forewing, but in no case other than the present is this due to the scales being directed in a different direction from those on the remainder of the wing. These scales do not appear to differ from the others in shape or in the angle of attachment to the wing surface, and are present in both sexes. The species is somewhat similar in appearance to *Leucoma submarginata* Wlkr. (1855), with which it has hitherto been confounded.

13. **Leucoma marginalis** Wlkr.

Redoa marginalis Wlkr., *Journ. Linn. Soc. Lond. (Zool.)*, vi, p. 128 (1862).
Leucoma marginalis Wlkr., Seitz, *Grossschm. d. Erde*, x, p. 311, pl. 39c (1915).

Type, ♂, Sarawak, in the Oxford Museum.

2 ♂♂, Singapore ; 1 ♂, 2,260 ft., Penang ; in British Museum. 1 ♂, Penang ; in Tring Museum. 2 ♂♂, Kuala Lumpur ; 1 ♂, 3,450 ft., Bukit Kutu, Selangor ; in F.M.S. Museum, Kuala Lumpur.

Some of these ♂♂ have a distinct greenish hue in the veins of both wings, as in *L. singaporensis* Strand.

14. **Leucoma phasmatodes** sp. nov.

♀. Palpus pale pinkish buff, darker at the tip. Antennal shaft whitish, pectinations warm buff. Head whitish (discoloured in type), on the frons below the antenna Prout's brown. Thorax and abdomen white, the latter thinly scaled. Pectus, venter and legs whitish, fore- and midlegs with a Prout's brown spot proximally on the outer side of tibia and tarsus, and a further spot at the junction of femur and tibia. Wings semi-hyaline, whitish ; iridescent scales on the discocellulars, also above and below the anal vein and over the distal one-fourth of the wing ; these scales on the hindwing are somewhat less prominent than on the forewing ; fringes whitish. *Underside* of both wings, and fringes, whitish.

Expanse : ♀♀ 49–58 mm.

1 ♀ (holotype), 15.v.1931, and 1 ♀ (paratype), February 1931, Kuala Lumpur ; 1 ♀ (paratype), Bukit Kutu, Selangor, 3,500 ft., 16.iii.1931 ; all taken at light by H. M. Pendlebury ; F.M.S. Museum. Holotype presented to British Museum.

Resembles *Leucoma diaphana* Moore (1879), but is a much smaller insect. I have also compared it with ♂♂ of *L. marginalis* Wlkr. (1862), but it is evidently distinct.

15. **Leucoma niphobola** sp. nov. (plate I, fig. 26).

♂. Palpus cartridge-buff, the tip tawny olive. A small aborted proboscis. Antennal shaft cartridge-buff, pectinations Prout's brown. Thorax cartridge-

buff. Abdomen above and beneath whitish, thinly scaled ; anal tuft cartridge-buff. Pectus and legs cartridge-buff, the latter banded with Prout's brown. Wings semi-hyaline ; on the forewing a patch of white shining scales in the centre of the cell, a further patch on the discocellulars, patches interneurally near the origins of *M* 3 to anal vein, and a postmedial series of long interneural patches with a few scales of Prout's brown at their distal ends ; costa narrowly cartridge-buff mixed with Prout's brown ; fringe whitish. Hindwing similar to forewing in markings, but with no colouring on the costa, and with cartridge-buff on the inner margin ; fringe whitish. *Underside* of both wings without markings ; fringe whitish.

Expanse : ♂♂ 29–31 mm.

1 ♂ (holotype) and 2 ♂♂ (paratypes), Taiping (E. Seimund) ; F.M.S. Museum. 1 ♂ (paratype), Padang Rengas ; Tring Museum. Holotype presented to British Museum.

16. **Leucoma nivosa** Wlkr.

Leucoma nivosa Wlkr., *List Lep. Ins. B.M.*, xxxii, p. 344 (1865) ; Seitz, *Grossschm. d. Erde*, x, p. 312 (1915).

Type, ♀ (not ♂ as stated in the original description), Mt. Ophir, Malacca, in Oxford Museum.

1 ♀, Singapore (H. N. Ridley) ; in British Museum.

This species much resembles *L. singaporensis* Strand, but (in the ♀) there is no trace of greenish colour in the veins of the forewing. *L. nivosa* has a rather heavier and less transparent appearance and, in spite of its specific name, the forewing is creamy white as compared with the snowy white of *L. singaporensis*. In structure the two species appear to be very similar, although I have not compared the genitalia.

17. **Leucoma micacea** Wlkr.

Redoa micacea Wlkr., *Journ. Linn. Soc. Lond.* (*Zool.*), vi, p. 127 (1862).
Leucoma micacea Wlkr., Seitz, *Grossschm. d. Erde*, x, p. 311, pl. 39d (1915).
Leucoma pulverulenta Snell., *Iris*, viii, p. 138 (1895) ; Seitz, x, p. 310 (1915).

Type, ♂, Sarawak, in British Museum.

1 ♂, Penang ; in Tring Museum. 1 ♂, near Jitra, Kedah ; 1 ♂, 3,400 ft., Bukit Kutu, Selangor ; 1 ♂, 1,500 ft., Batang Padang, Perak ; 1 ♂, Ginting-Sempak, Pahang ; 1 ♀, 500 ft., Kuala Teku, Pahang ; in F.M.S. Museum, Kuala Lumpur.

18. **Leucoma flora** Swinh.

Leucoma flora Swinh., *Trans. Ent. Soc. Lond.*, p. 383 (1903) ; Seitz, *Grossschm. d. Erde*, x, p. 312, pl. 39g (1915).

Type, ♂, Pulau Laut, in British Museum.

1 ♂, Singapore (H. N. Ridley) ; in British Museum.

This ♂ agrees in appearance and venation with Bornean specimens, but is much smaller than the type, 23 mm. as against 28 mm.

19. **Leucoma egerina** Swinh.

Leucoma egerina Swinh., *A.M.N.H.* (6), xii, p. 213 (1893) ; Seitz, *Grossschm. d. Erde*, x, p. 311, pl. 39e (1915).

Type, ♂, Singapore, in British Museum.

7 ♂♂, 3 ♀♀, Singapore ; 1 ♀, Semangho, Selangor ; in British Museum.

1 ♂, Singapore ; 1 ♀, Penang ; in Tring Museum. 2 ♀♀, Kuala Lumpur ; in F.M.S. Museum.

The ♀ resembles the ♂ in general appearance.

20. **Caviria impressa** Snell.

Leucoma impressa Snell., *Tijdschr. v. Ent.*, xx, p. 8, pl. 1, fig. 1 (1877).
Caragola impressa Snell., Seitz, *Grossschm. d. Erde*, x, p. 313 (1915).

Type, ♀, Java, in Leiden Museum.

2 ♂♂, 3,500 ft., Bukit Kutu, Selangor ; 1 ♀, Cheras, Selangor ; 2 ♀♀, Kuala Lumpur ; 1 ♀, Kuala Tahan, Pahang ; in F.M.S. Museum, Kuala Lumpur.

21. **Caviria ochripes** Moore.

Stilpnotia ochripes Moore, *Lep. Coll. Atk.*, p. 45 (1879).
Caragola ochripes Moore, Seitz, *Grossschm. d. Erde*, x, p. 313, pl. 39d (1915).

Type, ♀, Darjeeling, in Berlin Museum.

1 ♀, 20.vii.1915, Kuala Lumpur ; in F.M.S. Museum, Kuala Lumpur.

The Malayan specimen corresponds well to the original description, and I have little doubt that it is correctly determined.

22. **Perina nuda** Fabr.

Bombyx nuda Fabr., *Mant. Ins.* ii, p. 119 (1787).
Perina nuda Fabr., Seitz, *Grossschm. d. Erde*, ii, p. 134, pl. 21d (1910).

Type, ♂, India, in British Museum (Bankes collection).

1 ♂, Singapore ; 1 ♀, Penang ; in British Museum. 1 ♀, Perak ; in Zoological Museum, Berlin. 1 ♂, Kuala Lumpur ; 1 ♂, 3,500 ft., Bukit Kutu, Selangor ; 1 ♀, 3,500 ft., Lubok Tamang, Pahang ; in F.M.S. Museum.

23. **Porthesia subnotata** Wlkr.

Orvasca subnotata Wlkr., *List Lep. Ins. B.M.* xxxii, p. 502 (1865).
Euproctis subnotata Wlkr., Seitz, *Grossschm. d. Erde*, ii, p. 139 (1910).

Type, ♀, Hindostan, in British Museum.

5 ♀♀, Singapore ; 2 ♀♀, Kuala Lumpur ; in British Museum. 1 ♂, Penang ; in Tring Museum. 1 ♀, Singapore ; 4 ♂♂, 12 ♀♀, Kuala Lumpur ; 1 ♀, 3,500 ft., Bukit Kutu, Selangor ; in F.M.S. Museum.

Malayan specimens are probably indistinguishable from the Indian form, but in the British Museum the available material of the latter is too small for detailed comparison.

24. **Porthesia scintillans similis** Moore.

Artaxa similis Moore, *Cat. Lep. Mus. E.I.C.* ii, p. 351 (1859).
Euproctis similis Moore, Seitz, *Grossschm. d. Erde*, x, p. 352, pl. 44e (1918).

Type, ♀, Java, in British Museum.

4 ♀♀, Singapore ; in British Museum. 2 ♀♀, Penang ; in Tring Museum. 4 ♂♂, 1 ♀, Kuala Lumpur ; 1 ♂, 3,300 ft., Kedah Peak ; 1 ♂, 1 ♀, 3,500 ft., Bukit Kutu, Selangor ; in F.M.S. Museum.

Considerably darker in both sexes than *P. scintillans* Wlkr., and the yellow on the forewing reduced in area.

25. **Porthesia limbata** Butl.

Artaxa limbata Butl., *Ill. Het. Br. Mus.* v, p. 53, pl. xc, fig. 3 (1881).
Euproctis limbata Butl., Seitz, *Grossschm. d. Erde*, ii, p. 139 (1910).

Type, ♀, Darjeeling, in British Museum.

1 ♂, Kuala Lumpur ; F.M.S. Museum, ex coll. Agric. Dept.

On the material available it is not possible to say whether the Malayan race should be separated from the Indian.

26. **Porthesia virguncula** Wlkr.

Euproctis virguncula Wlkr., *List Lep. Ins. B.M.* iv, p. 836 (1855).
Porthesia virguncula Wlkr., Seitz, *Grossschm. d. Erde*, x, p. 333, pl. 45b and c (1915).

Type, ♂, Punjab, in British Museum.

1 ♂, Malacca ; in Zoological Museum, Berlin.

27. **Porthesia orphnaea** sp. nov. (plate I, fig. 8).

♀. Palpus porrect, light buff. Antennal shaft ochraceous-buff, pectinations lighter. Head ochraceous-buff. Thorax ochraceous-buff to ochraceous-tawny. Abdomen above and beneath bone brown, anal tuft ochraceous-buff. Pectus light buff. Legs light buff to warm buff. Forewing drab, irrorated rather faintly over the whole wing with tawny olive and fuscous ; on two of the paratypes there are traces of an antemedial and a postmedial fascia, indicated by a decrease in the irroration ; fringe drab. Hindwing hair brown, fringe drab. *Underside* of both wings, and fringes, uniform drab.

Expanse : ♀♀ 36–42 mm.

1 ♀ (holotype), 12.iii.1931, 1 ♀ (paratype), 17.iii.1931, 1 ♀ (paratype), 16.iv.1926, at light, 3,500 ft., Bukit Kutu, Selangor (H. M. Pendlebury) ; 1 ♀ (paratype), Sungei Renglet, Pahang, at light, 3,500 ft., 27.ii.1925 (H. M. Pendlebury) ; F.M.S. Museum. Holotype presented to British Museum.

28. **Euproctis atereta** sp. nov. (plate I, fig. 18).

♂. Palpus upturned, warm buff. Antenna tawny olive. Head and patagium orange-buff, remainder of thorax snuff-brown. Abdomen fuscous, towards the base snuff-brown ; anal tuft light orange-yellow. Pectus, venter and legs warm buff mixed with light buff, front of pectus orange-buff. Forewing sayal brown irrorated sparsely over the whole wing with fuscous ; on the termen three large semicircular cream-buff spots, one at the apex, another between veins *M*1 and *M*3, another from vein *Cu*1 to below vein *Cu*2 ; fringe sayal brown, cream-buff opposite the terminal spots. Hindwing bistre, terminal area narrowly cream-buff ; fringe cream-buff. *Underside* of forewing and fringe cream-buff. *Underside* of hindwing cream-buff ; the area between the cell and inner margin, and as far as the anal angle, bistre ; fringe cream-buff.

Expanse : ♂♂ 29–37 mm.

1 ♂ (holotype) and 3 ♂♂ (paratypes), 3,500 ft., April 1926 and March 1931 ; 1 ♂ (paratype), Tanah Rata, Cameron's Highlands, Pahang, 4,800 ft., 20.v.1931 ; all taken at light by H. M. Pendlebury ; F.M.S. Museum. Holotype presented to the British Museum.

This species has much the same appearance as *Porthesia similis* Moore (1859), but has the venation of an *Euproctis*.

29. **Euproctis atomaria** Wlkr.

Artaxa atomaria Wlkr., *List Lep. Ins. B.M.* iv, p. 796 (1855).
Euproctis atomaria Wlkr., Seitz, *Grossschm. d. Erde*, ii, p. 138, pl. 21h (1910); Van Eecke, *Zool. Med. Leiden*, xi, p. 126 (1928).

Type, ♀, North India, in British Museum. It should be noted that the insect mentioned in the original description under the heading "female" bears the data "43.10. North India," while "var. β" bears the data "43.43. East Indies."

1 ♀, Gunong Tahan (J. Waterstradt); in Tring Museum.

The Malayan ♀ is rather larger (expanse 38 mm.) than the type from N. India, with broader and darker forewing. In the absence of further specimens it is not possible to decide whether it belongs to a separate race.

30. **Euproctis varians** Wlkr.

Artaxa varians Wlkr., *List Lep. Ins. B.M.* iv, p. 796 (1855).
Euproctis varians Wlkr., Seitz, *Grossschm. d. Erde*, ii, p. 137 (1910).

Type, ♀, N. China, in British Museum.

1 ♂, 1 ♀, Ulu Gombak, 5.x.1929, larvae on *Oryza sativa* L.; 1 ♂, Ulu Langat, 30.x.1929, larva on *O. sativa*; 1 ♂, Serdang, 27.iii.1928, larva on *Conbera odullum*; 1 ♀, Kuala Lumpur, 3.x.1928, larva on *Citrus aurantiaca*, all G. H. Corbett; British Museum, ex Imperial Institute of Entomology. 1 ♂, Padang Rengas; 3 ♂♂, 2 ♀♀, Kuala Lumpur; in Tring Museum. 1 ♂, Malacca; in Zoological Museum, Berlin. 7 ♂♂, 7 ♀♀, Kuala Lumpur; in F.M.S. Museum.

31. **Euproctis dyssema** sp. nov.

♂. Palpus upturned, tawny olive. Antennal shaft pinkish buff, pectinations tawny olive. Head and thorax ochraceous-buff. Abdomen bistre, basal segments and anal tuft ochraceous-buff. Pectus and venter ochraceous-buff. Legs fringed with long hair-scales, pale yellow-orange, mixed on foreleg with ochraceous buff. Forewing light yellow-orange, slightly darkened medially below the cell by scattered scales of tawny olive; a very faint postmedial fascia, lighter than the ground colour and roughly parallel with the termen; fringe light yellow-orange. Hindwing and fringe light buff, inner marginal area slightly shaded with tawny olive. *Underside* of both wings light buff, slightly darker in the costal areas; fringes light buff.

♀. Resembles the ♂, but forewing practically without marking.

Expanse: ♂♂ 29–37 mm., ♀♀ 31–37 mm.

1 ♂ (holotype), 1 ♂ and 2 ♀♀ (paratypes), Kuala Lumpur, October 1921 (3) and 1.i.1931 (1); 2 ♂♂ (paratypes), Bukit Kutu, Selangor, 3,450–3,500 ft., 12.iii.1931 and 16.iv.1926; 1 ♂ (paratype), Ginting-Sempak Pass, 21.x.1921; 1 ♀ (paratype), near Jitra, Kedah, 8.iv.1928; F.M.S. Museum. 1 ♀ (allotype) and 1 ♂, 1 ♀ (paratypes), Singapore, H. N. Ridley; 1 ♀ (paratype), Malacca (J. Waterstradt), 1904; British Museum. 3 ♀♀ (paratypes), Perak; Tring Museum. Holotype and one ♂ paratype presented to British Museum.

This species can be distinguished from *E. varians* Wlkr. by the dark abdomen and larger size. The ♀♀ in the series are rather small as compared with the ♂♂, but appear to be conspecific. There is no trace of a spot on the discocellulars in either sex.

Among several small yellow *Euproctis* from Malaya which are before me and which are not in good enough condition for identification, there appears to be at least one additional new species. Bred series of these difficult insects would greatly help in clearing up present uncertainties.

32. **Euproctis bipunctapex** Hamps.

Somena bipunctapex Hamps., *Ill. Het. Br. Mus.* viii, p. 57, pl. cxl. fig. 13 (1891).
Euproctis bipunctapex Hamps., Seitz, *Grossschm. d. Erde*, ii, p. 137, pl. 21h (1910).

Type, ♀. Nilgiris, in British Museum. In the original description Hampson apparently refers to Nilgiri specimens of both sexes, but there is no ♂ from this locality in the British Museum. The ♀ figured is labelled by him as type of the species.

2 ♂♂, 4 ♀♀, Singapore ; 1 ♂, 2,000–3,500 ft., Perak ; in British Museum. 2 ♂♂, Gunong Tahan ; 2 ♂♂, Penang ; in Tring Museum. 1 ♂, 2 ♀♀, 3,500 ft., Bukit Kutu, Selangor ; 1 ♂, 2 ♀♀, Kuala Lumpur ; 1 ♂, Taiping ; 1 ♂, near Jitra, Kedah ; in F.M.S. Museum.

I have seen no ♂ from Southern India, but judging from a comparison of the ♀♀, Indian and Malayan specimens do not differ.

33. **Euproctis bigutta** Wlkr.

Euproctis bigutta Wlkr., *List Lep. Ins. B.M.* iv, p. 837 (1855) ; Seitz, *Grossschm. d. Erde*, ii, p. 138 (1910), and x, p. 337 (1915).

Type, ♂, Canara, Malabar Coast, in British Museum.

3 ♂♂, 2 ♀♀, Singapore ; in British Museum.

The 3 ♂♂ of this series have a small spot on the discocellulars of the forewing, as in the type. The 2 ♀♀ are without this spot.

34. **Euproctis digramma** Boisd.

Bombyx digramma Boisd., in Guér., *Icon. Règne Anim. de Cuvier*, p. 508, pl. 86, fig. 4 (1844).
Euproctis digramma Guér., Seitz, *Grossschm. d. Erde*, ii, p. 138 (1910).

Type, ♂, Java, in British Museum.

1 ♀, 2,000–3,500 ft., Perak ; in British Museum. 6 ♂♂, Penang ; 1 ♀, Ipoh, Perak ; in Tring Museum. 2 ♀♀, Kuala Lumpur ; 1 ♀, 1,800 ft., Batang Padang, Perak ; in F.M.S. Museum.

In addition to the two conspicuous black spots on the forewing between veins *R*4–*R*5 and *M*1–*M*2, some of the above specimens of both sexes show smaller spots between veins *R*3–*R*4 and *R*5–*M*1. This is also the case with Javanese specimens.

35. **Euproctis bimaculata** Wlkr.

Euproctis bimaculata Wlkr., *List Lep. Ins. B.M.* iv, p. 836 (1855) ; Moore, *Lep. Ceylon*, ii, p. 89, pl. 112, figs. 6 and 6b (1883) ; Seitz, *Grossschm. d. Erde*, ii, p. 138 (1910).

Type, ♀, Ceylon, in British Museum.

1 ♀, Malacca (expanse 44 mm.) ; in Zoological Museum, Berlin.

This species, which is evidently rare, is represented in the British Museum by 2 ♀♀ and 1 ♂ from Ceylon. They are uniform, showing a cream-colour forewing, a white hindwing, and on the discocellulars of the forewing a very large and almost round black spot, measuring nearly 2 mm. in diameter. The two

illustrations in Seitz, on pl. 21h of vol. ii and pl. 45h of vol. x, are misleading. The species appears to be quite distinct from *E. bigutta* Wlkr. (1855).

The evidence for the occurrence of the species in Malaya rests on the specimen mentioned above, which has no data other than "Malacca."

36. **Euproctis protea** sp. nov. (plate I, fig. 13).

♂. Palpus and head ochraceous-buff. Antenna warm buff. Patagium and base of tegula ochraceous-buff, remainder of thorax pinkish buff. Abdomen Verona brown; anal tuft ochraceous buff, light buff at the base. Pectus and venter ochraceous buff mixed with light buff; legs light buff. Forewing warm buff; on the discocellulars a conspicuous fuscous spot; fringe warm buff. Hindwing light buff mixed with drab, lighter in the costal and terminal areas; fringe light buff. *Underside* of both wings, and fringes, light buff.

Expanse: ♂♂ 34–37 mm.

1 ♂ (holotype), Province Wellesley, Distant; in British Museum, ex Joicey collection. 4 ♂♂ (paratypes), Penang, March–April 1897 and 1898 (Curtis); 1 ♂ (paratype), Ipoh, Perak (F. Rankin); 1 ♂ (paratype), Kasoon Mountains, November 1896 (Curtis); in Tring Museum.

There is considerable variation in this species, both in the size of the fuscous spot on the forewing, and also in the ground-colour of fore- and hindwing.

37. **Euproctis hapala** sp. nov. (plate I, fig. 16).

♀. Palpus porrect and rather long, antimony-yellow. Antenna and head antimony-yellow. Thorax much worn, but apparently antimony-yellow, and with some long spatulate benzo-brown scales tipped with white in patagium and tegula. Abdomen fuscous, mixed with light buff dorsally at the base. Pectus and venter light buff, legs light buff to pinkish buff. Forewing Naples yellow; a broad central band of benzo-brown occupying more than a third of the wing, produced inwardly below the cell to the base of the wing, distally reaching the postmedial area where it is bounded narrowly with white, and produced between veins *M*3 and *Cu*1 almost to the termen; along the inner margin some long spatulate benzo-brown scales tipped with white; in the apex a small fuscous spot between veins *R*4 and *R*5, and a large rounded fuscous spot between veins *R*5 and *M*1; fringe Naples yellow. Hindwing light buff, fringe pale pinkish buff. Underside of forewing pale pinkish buff, the central band and Naples-yellow areas faintly indicated towards the costa and apex, and the two fuscous spots plainly marked in the apex; fringe Naples yellow mixed with pale pinkish buff. *Underside* of hindwing and fringe pale pinkish buff.

Expanse: 28 mm.

1 ♀ (holotype), Fraser's Hill, Pahang, at light, 4,200 ft., 5.vii.1931 (H. M. Pendlebury); F.M.S. Museum. Kindly presented to British Museum.

Somewhat resembles in facies *E. dispersa* Moore (1879), but considerably smaller, and without the prolongation of the dark area in the forewing towards the termen between veins *M*1 and *M*2.

38. **Euproctis plagiata syngenes** subsp. nov. (plate II, fig. 30).

♀. Palpus porrect, pinkish buff, with a patch of Natal brown on the outer-side. Antennal shaft pinkish buff, pectinations cinnamon-buff. Head and

patagium Mars yellow, tegula somewhat lighter. Abdomen above and beneath fuscous, anal tuft, and basal segments dorsally, Mars yellow. Pectus and legs antimony yellow mixed with Mars yellow. Forewing sayal brown, irrorated over the whole wing with fuscous; a large almost rectangular patch of pale orange-yellow, free of irroration, occupying the origin of veins *M*2 to *Cu*2, and measuring approximately 5 × 3 mm.; terminal area for a depth of about 3½ mm. pale orange-yellow irrorated with fuscous; some long lanceolate fuscous scales along the basal half of the inner margin; fringe pale orange-yellow. Hindwing pale orange-yellow mixed rather heavily with sayal brown and fuscous; cell pale orange-yellow; some dark bushy hair-scales between cell and inner margin; terminal area for a depth of about 1½ mm., and fringe, pale orange-yellow. *Underside* of forewing pale orange-yellow irrorated with sayal brown, terminal area free of irroration for a depth of about 5 mm., also more narrowly along the inner margin; fringe pale orange-yellow. Underside of hindwing pale orange-yellow irrorated with sayal brown, terminal area free of irroration for a depth of about 4 mm.; on the discocellulars a faint dark striga; fringe pale orange-yellow.

Expanse: 66 mm.

1 ♀ (holotype), Tana Rata, Cameron's Highlands, Pahang, 4,800 ft., 16.vi.1926 (D. Kedit); F.M.S. Museum. Kindly presented to British Museum.

Can be separated easily from *E. plagiata* Wlkr. by the presence of dark irroration on upper- and underside of hindwing. The genitalia appear to differ very little, and I infer that this ♀ represents the Malayan race of the N. Indian species.

39. **Euproctis biplagata** Heyl.

Antipha biplagata Heyl., *C. R. Soc. Ent. Belg.* i, p. 10 (1892).
Euproctis biplagata Heyl., Van Eecke, *Zool. Med. Leiden*, xi, p. 125, pl. x, figs. 9a–9c (1928).
Euproctis biplagatana Strand, Seitz, *Grossschm. d. Erde*, x, p. 352 (1918).
Euproctis renifera Swinh., *Trans. Ent. Soc. Lond.*, p. 12 (1895).

Type, ♂, Praeanger, Java, in Leiden Museum.

Type (*E. renifera*), ♀, Cherra Punji, Assam, in British Museum.

2 ♀♀, Singapore; 1 ♀, Kuala Lumpur; in British Museum. 1 ♀, Padang Rengas; 1 ♀, Gunong Ijau, Perak; in Tring Museum. 1 ♀, 1,800 ft., Jor Camp, Batang Padang, Perak; 1 ♂, Kuala Lumpur; 1 ♀, 3,500 ft., Lubok Tamang, Pahang; 1 ♀, 3,400 ft., Bukit Kutu, Selangor; 1 ♀, 3,300 ft., Kedah Peak; in F.M.S. Museum.

I have identified these Malayan ♀♀ with the Javanese and Sumatran *E. biplagata* Heyl. on the strength of van Eecke's description and figures, which support the original description.

A comparison of the genitalia of a Javanese ♂ and of a ♂ from Assam shows no distinction, and *E. renifera* Swinh. should sink to *E. biplagata* Heyl., as already suspected by van Eecke.

40. **Euproctis atrisignata** Swinh.

Euproctis atrisignata Swinh., *Trans. Ent. Soc. Lond.*, p. 423 (1903); Seitz, *Grossschm. d. Erde*, x, p. 339, pl. 44c (1915).

Type, ♂, Singapore, in British Museum.

2 ♂♂, 1 ♀ (neallotype), Singapore; in British Museum. 3 ♂♂, Kuala Lumpur; in F.M.S. Museum.

The ♀, which has not hitherto been described, resembles the ♂, but the white spots along the termen of the forewing are barely visible, and there is a somewhat heavier irroration of dark scales on the forewing. This irroration of dark scales is not mentioned in Swinhoe's original description of the ♂, but is nevertheless present in the type and in the other specimens enumerated above.

41. **Euproctis minutissima** Swinh.

Euproctis minutissima Swinh., *Trans. Ent. Soc. Lond.*, p. 425 (1903); Seitz, *Grossschm. d. Erde*, x, p. 339, pl. 44c (1915).

Type, ♂, Singapore (H. N. Ridley), in British Museum.

42. **Euproctis chirunda** Swinh.

Euproctis chirunda Swinh., *Trans. Ent. Soc. Lond.*, p. 422 (1903); Seitz, *Grossschm. d. Erde*, x, p. 349, pl. 44a (1918).

Type, ♀, Sandakan, in British Museum.

1 ♀, Singapore; in Zoological Museum, Berlin. 1 ♀, Kuala Lumpur; in F.M.S. Museum.

There is a further ♀ in the British Museum from Lebong Tandai, Benkoelen, Sumatra, but I have seen no ♂♂.

43. **Euproctis hemicyclia** Collnt.

Euproctis hemicyclia Collnt., *Trans. Ent. Soc. Lond.*, p. 69 (1930).

Type, ♂, Sumatra, in British Museum.

1 ♀, at light, 4,200 ft., Fraser's Hill, Pahang, 2.vii.1931 (H. M. Pendlebury); in F.M.S. Museum.

This species was described from a series taken in S.W. Sumatra, at a height of 5,000–7,300 ft., and may prove to be confined to high elevations.

44. **Euproctis ruptata** Wlkr.

Artaxa (?) *ruptata* Wlkr., *Journ. Linn. Soc. Lond. (Zool.)*, vi, p. 126 (1862).
Euproctis ruptata Wlkr., Seitz, *Grossschm. d. Erde*, x, p. 349 (1918).

Type, ♂, Sarawak, in Oxford Museum.

1 ♂, at light, 3,500 ft., 7.vi.1923, Lubok Tamang, Pahang; and 1 ♂, 1 ♀, at light, 13.vi.1931 and 20.v.1931, Kuala Lumpur (all taken by H. M. Pendlebury); in F.M.S. Museum.

The type is in poor condition and without an abdomen, but the Malayan specimens appear to correspond.

The insect which I take to be the ♀ has similar venation, and the same pattern can be traced on the forewing, but in a more diffuse and less clear-cut form. The abdomen is dark, with a large, light-coloured anal tuft, and there is dark irroration over the whole of the hindwing. Expanse 28 mm.

45. **Euproctis lyclene** Swinh.

Euproctis lyclene Swinh., *Trans. Ent. Soc. Lond.*, p. 144 (1904); *id.*, *Sarawak Mus. Journal*, iii, p. 141 (1926) (♂); Seitz, *Grossschm. d. Erde*, x, p. 349 (1918).

Type, ♀, Kuching, Borneo, in British Museum.

Neallotype, ♂, Mt. Poi, Sarawak, in British Museum.

1 ♀, at light, 1,800 ft., 20.i.1925, Jor Camp, Batang Padang, Perak (H. M. Pendlebury); in F.M.S. Museum.

I have seen only the two type specimens and the present ♀ from Perak, all of which are in poor condition. The Malayan specimen is probably shown correctly under this name, but is much larger than the type—34 mm. as against 23 mm.

46. **Euproctis stenopa** sp. nov. (plate II, fig. 29).

♂. Palpus upturned, warm buff, on the outer side cinnamon-brown. Antennal shaft light buff, pectinations buckthorn-brown. Head warm buff. Thorax ochraceous-tawny, shading posteriorly to drab. Abdomen above and beneath fuscous, anal tuft tawny olive. Pectus and legs light buff. Forewing pale pinkish buff, irrorated fairly heavily with fuscous, more lightly in the apical area; basal third of wing lightly shaded with drab; three conspicuous fuscous subterminal spots, one on vein *M*1, another between veins *M*3 and *Cu*1, and another just above the anal vein; fringe pale pinkish buff mixed sparsely with fuscous. Hindwing drab; fringe pale pinkish buff, this colour slightly invading the wing area near the anal angle. *Underside* of both wings snuff-brown, grading to pale pinkish buff in the distal third of each wing; fringes pale pinkish buff.

Expanse: ♂♂ 34–37 mm.

1 ♂ (holotype), 11.ix.1929, and 1 ♂ (paratype), 16.iv.1926, at light, 3,450–3,500 ft., Bukit Kutu, Selangor (H. M. Pendlebury); 1 ♂ (paratype), The Gap, Pahang, March 1921; 1 ♂ (paratype), Kuala Lumpur, at light, 6.iii.1918; F.M.S. Museum. Holotype presented to British Museum.

47. **Euproctis cheela** Swinh.

Euproctis cheela Swinh., *Trans. Ent. Soc. Lond.*, p. 412 (1903); Seitz, *Grossschm. d. Erde*, x, p. 341 (1915).

Type, ♂, Singapore, in British Museum.

3 ♂♂, Singapore; in British Museum.

The ♀ of this species appears to be unknown.

48. **Euproctis flavociliata** Swinh.

Euproctis flavociliata Swinh., *A.M.N.H.* (7), vii, p. 465 (1901); Seitz, *Grossschm. d. Erde*, x, p. 342, pl. 44a (1915).

Type, ♀, Perak, in British Museum.

1 ♀, Singapore; in British Museum. 1 ♀, Penang; 1 ♀, Perak; in Tring Museum. 1 ♀, Kuala Lumpur; in F.M.S. Museum.

I have not been able to identify the ♂ of this species.

49. **Euproctis singapura** Swinh.

Artaxa singapura Swinh., *Cat. Lep. Het. Oxford*, i, p. 189, pl. vi, fig. 19 (1892).
Euproctis singapura Swinh., Seitz, *Grossschm. d. Erde*, x, p. 343 (1915).

Type, ♂, Singapore, in Oxford Museum.

Other than the type, I have seen no specimen of this insect. It appears to be quite distinct from *E. varians* Wlkr., having an expanse of 28 mm. ($1\frac{1}{10}$ inches) as against 18–22 mm. in the series of 15 Malayan ♂♂ of *E. varians* in the present paper.

50. **Euproctis callipotama** sp. nov. (plate I, fig. 4).

♀. Palpus long and porrect, pinkish buff, tipped with tawny. Antenna pinkish buff. Head and thorax pinkish buff, mixed on vertex and patagium with ochraceous-buff. Abdomen above and beneath fuscous, anal tuft ochraceous-buff. Pectus and legs pinkish buff to pale pinkish buff. Forewing cream-colour, irrorated thickly with bone-brown, but with basal and costal areas almost free of irroration ; an antemedial fascia, indicated by an absence of irroration, runs from the origin of vein *Cu*2 oblique inwardly to the inner margin ; a patch free of irroration is situated at the origin of veins *M*2 to *Cu*1 ; occupying the apex is a patch free of irroration, having a conspicuous fuscous spot at its centre and extending downwards to vein *R*5 ; a further free patch occurs between veins *M*1 and *M*2, extending inwards to about 3 mm. from the termen ; fringe cream-colour, mixed with bone-brown except from the apex to vein *R*5, *M*1 to *M*3, and *Cu*1 to *Cu*2. Hindwing drab, with a narrow border of cream-colour along the termen ; fringe cream-colour. *Underside* of forewing drab ; inner marginal area below the anal vein pale pinkish buff ; the two light areas on the termen of the upperside are reproduced and rather extended in area, but without the fuscous spot ; fringe pale pinkish buff to cream-colour, mixed with drab. *Underside* of hindwing, and fringe, pale pinkish buff, shading to drab in the basal third of the wing.

Expanse : 43 mm.

1 ♀ (holotype), Sungei Renglet, Pahang, at light, 3,500 ft., 4.iii.1925 (H. M. Pendlebury) ; F.M.S. Museum. Kindly presented to the British Museum.

This insect is nearly related to an unnamed ♂ and ♀ in the British Museum, from Assam, and also to *E. kanshireia* Wileman (1910).

51. **Euproctis singapura** Swinh.

Artaxa singapura Swinh., *Cat. Lep. Het. Oxford*, i, p. 189, pl. 6, fig. 19 (1892) ; Seitz, *Grossschm. d. Erde*, x, p. 343 (1915).

Type, ♂, Singapore, in Oxford Museum.

I have seen no Malayan specimens of this species other than the type.

52. **Euproctis javana epirotica** subsp. nov. (plate II, fig. 37).

♀. Palpus, head, patagium and base of tegula warm buff, remainder of thorax benzo-brown. Antennal shaft warm buff, the pectinations darker. Abdomen above and beneath benzo-brown ; anal tuft large, tawny olive, at the base warm buff. Pectus and legs light buff mixed with warm buff. Forewing cinnamon-brown ; a semicircular patch of buff-yellow above the end of the cell ; a fuscous spot on the discocellulars just inside the cinnamon-brown area ; terminal area buff-yellow, the cinnamon-brown reaching the termen at the apex and at vein *M*3 ; fringe buff-yellow. Hindwing benzo-brown ; fringe, and termen narrowly, buff-yellow. *Underside* of both wings, and fringes, much as on upperside, but with costa of forewing narrowly buff-yellow, and without the fuscous spot on the discocellulars.

Expanse : 46 mm.

1 ♀ (holotype), Kampong Padang, Tembiling River, Pahang, at light, 27.ii.1923 (H. W. Wooly) ; F.M.S. Museum. Kindly presented to British Museum.

In examples of *E. javana* Auriv. the black spot on the discocellulars of the forewing is in the centre of a semicircle of yellow, but in the Malayan ♀ described above it is just inside the cinnamon-brown area. This and other differences seem to indicate subspecific rank for the Malayan form, but this should be revised when ♂♂ are available.

Euproctis varia Wlkr. (1855), illustrated on pl. ixa, fig. 5, of Moore's *Cat. Lep. Mus. E.I.C.* ii, is a very distinct form from *E. varia* var. *javana* Auriv., *Ent. Tijskr.*, p. 174 (April 1894), and I now raise the latter to the status of a species. The insects represented on pl. ix, figs. 12 and 12a of *Zool. Med. Leiden*, Deel xi, belong to the form which I recognize as *E. javana* Auriv.

I have compared the genitalia of the type ♂ of *E. oreosaura* Swinh., *A.M.N.H.* (6), xiv, p. 435 (December 1894), with those of specimens of *E. javana* and find a considerable difference, especially in the shape of the valve. I therefore regard *E. varia* Wlkr. (N. India), *E. oreosaura* Swinh. (Cherra Punji) and *E. javana* Auriv. (Java) as distinct species.

53. **Euproctis ormea** Swinh.

Euproctis ormea Swinh., *Trans. Ent. Soc. Lond.*, p. 426 (1903); Seitz, *Grossschm. d. Erde*, x, p. 347, pl. 44f (1918).

Type, ♀, S.E. Borneo, in British Museum.

2 ♀♀, larva on *Aleurites montana*, Kuala Lumpur; in British Museum.

54. **Euproctis postnigra** Swinh.

Euproctis postnigra Swinh., *Trans. Ent. Soc. Lond.*, p. 421 (1903); Seitz, *Grossschm. d. Erde*, x, p. 348, pl. 43d (1918).

Type, ♀, Matang, Borneo, in British Museum.

1 ♀, 1920, The Gap, Pahang; in F.M.S. Museum.

The Malayan specimen has the ochreous ground-colour of the forewing less bright than in the type, and the hindwing is of a lighter tint of brown. This may be due to fading.

55. **Euproctis xanthomela** Wlkr.

Euproctis xanthomela Wlkr., *Journ. Linn. Soc. Lond.* (*Zool.*), vi, p. 128 (1862); Seitz, *Grossschm. d. Erde*, x, p. 348 (1918).

Type, ♂, Sarawak, in Oxford Museum.

1 ♂, 3,300 ft., Bukit Kutu, Selangor; in British Museum. 2 ♂♂, 3,400–3,500 ft., Bukit Kutu; 1 ♂, Kuala Tahan, Pahang; in F.M.S. Museum.

In the original description Walker remarks that *E. xanthomela* "is most allied to" *E. atomaria*. He refers here to *E. atomaria* Wlkr., *List Lep. Ins. B.M.* iv, p. 837, 1855 (nom. praeoec) = *E. catala* Swinh. (1903), and not, as stated by Strand in Seitz, to *E. atomaria* Wlkr., *List Lep. Ins. B.M.* iv, p. 796 (1855).

56. **Euproctis cincta** Swinh.

Euproctis cincta Swinh., *A.M.N.H.* (7), xvii, p. 541 (1906); Seitz, *Grossschm. d. Erde*, x, p. 348 (1918).

Type, ♂, Kina Balu, in British Museum.

1 ♂, 1.ii.1923, Singapore (C. J. Saunders); in F.M.S. Museum.

The Singapore specimen has the distal third of the hindwing yellowish white, but at least one ♂ in the British Museum series from Kina Balu matches it in

this respect. As the determination is based on only one ♂ it is not without doubt, but a comparison of the genitalia gives no clear characters for separation.

57. **Euproctis moalata** Swinh.

Euproctis divisa Wlkr., *Journ. Linn. Soc. Lond.* (*Zool.*), vi, p. 129 (1862) (nom. praeocc.).
Euproctis moalata Swinh., *A.M.N.H.* (8), xviii, p. 216 (1916).
Euproctis divisella Strand, Seitz, *Grossschm. d. Erde*, x, p. 347 (1918).

Type, ♂, Sarawak, in Oxford Museum.

2 ♂♂, 3,450–3,500 ft., Bukit Kutu, Selangor ; in F.M.S. Museum.

In the F.M.S. Museum is a ♀ from Kuala Lumpur, taken at light on 7.ii.1931 by H. M. Pendlebury, which may belong to this species. It resembles the ♂, but has a faint dark spot on the discocellulars of the forewing, while the ochreous border of the hindwing is confined to the fringe. Expanse 47 mm. Further material is required to verify the determination.

The majority of ♂♂ from Sarawak have a faintly marked *light* spot on the discocellulars of the forewing.

58. **Euproctis munda** Wlkr.

Euproctis munda Wlkr., *Journ. Linn. Soc. Lond.* (*Zool.*), vi, p. 129 (1862) ; Seitz, *Grossschm. d.Erde*, x, p. 348, pl. 44h (1918).

Type, ♂, Sarawak, in British Museum.

6 ♂♂, 1 ♀, Singapore ; 5 ♀♀, Kuala Lumpur ; in British Museum. 2 ♂♂, Penang ; in Tring Museum.

A comparison of the genitalia of the type ♂ and of 2 Singapore ♂♂ shows no difference on which they should be separated.

There is considerable variation in the forewing of both sexes, from that which in the words of the original description is entirely " very pale fawn-colour or nankeen colour," to a form in which the wing is darker, with a border of buff-yellow some 1½ mm. broad along the termen and less plainly along the distal half of the costa, where it tends to merge into the ground-colour. These forms are satisfactorily linked together in the series of 5 ♀♀ from Kuala Lumpur, where both are present in insects reared from larvae feeding on *Canangium odoratum*.

59. **Euproctis leucophleba** sp. nov. (plate II, fig. 31).

♀. Palpus porrect, pinkish buff. Antennal shaft verona brown, pectinations Mars yellow. Head and thorax Mars yellow ; some long spatulate hair-scales with light tips in patagium and tegula. Abdomen above and beneath Saccardo's umber, anal tuft ochraceous-tawny. Pectus and legs pale pinkish buff to clay-colour. Forewing yellow-ochre, irrorated evenly and rather thickly with fuscous ; all veins whitish excepting in the basal half of costal area ; on the discocellulars an oblong fuscous spot, below which, embracing the origin of veins *M*2, *M*3, *Cu*1 and *Cu*2, is a large and conspicuous patch of white ; fringe yellow-ochre, mixed with fuscous interneurally. Hindwing Saccardo's umber, fringe light buff. *Underside* of both wings snuff-brown, grading in the subterminal areas to light buff irrorated with snuff-brown ; fringes light buff, mixed interneurally in the forewing with fuscous.

Expanse : ♀♀ 39–45 mm.

1 ♀ (holotype), Lebong Sandai, Benkoelen, S.W. Sumatra ; British Museum (ex Joicey collection). 1 ♀, Padang Rengas, Perak ; Tring Museum.

The Malayan specimen, which is not in such good condition as the type from Sumatra, agrees well in facies but is smaller in expanse.

Somewhat resembles *E. postnigra* Swinh. (1903), in which, however, the light patch on the forewing is beyond the discocellulars instead of below.

60. **Euproctis corbetti** Tams.

Nygmia corbetti Tams, *A.M.N.H.* (10), i, p. 626 (1928).

Type, ♂, Kuala Lumpur, in British Museum. Larva feeding on *Aleurites montana*.

1 ♀, Singapore, originally described as the allotype of *Euproctis ridleyi* Swinh. ; in British Museum. 1 ♀, Kuala Lumpur ; in Oxford Museum.

Both sexes have three pairs of faint white spots on the termen of the forewing, arranged as in *E. atrisignata* Swinh. (1903). There is also a black spot on the discocellulars of the forewing, plainly visible in the ♀♀, but indistinct in the ♂ holotype owing to the rubbed condition of the specimen.

61. **Euproctis tamsi** sp. nov. (plate II, fig. 38).

♂. Palpus short, upturned, tawny-olive, mixed laterally and above with fuscous. Antennal shaft drab, pectinations ochraceous-tawny. Head and thorax tawny-olive. Abdomen above and beneath Prout's brown, anal tuft ochraceous-buff. Pectus and legs light buff to warm buff. Forewing pinkish buff, irrorated with fuscous and orange-buff ; a rather large fuscous spot on the discocellulars ; a broad postmedial fascia composed of interneural fuscous spots, running at right angles from the costa down to vein *M* 1, thence slightly bowed inwardly to the inner margin at a little more than one-half ; fringe pinkish buff mixed with fuscous and orange-buff. Hindwing snuff-brown, grading to pinkish buff in the terminal and costal areas ; fringe pinkish buff lightly mixed with snuff-brown. *Underside* of forewing pinkish buff, mixed in and beyond the cell with snuff-brown ; fringe pinkish buff. *Underside* of hindwing pinkish buff, mixed in the basal half of wing with snuff-brown ; fringe pinkish buff.

Expanse : 44–47 mm.

1 ♂ (holotype), Bukit Kutu, Selangor, at light, 3,500 ft., 13.iv.1926 (H. M. Pendlebury) ; 1 ♂ (paratype), Bukit Kutu, 3,400 ft., August 1915 ; 1 ♂ (paratype), Kedah Peak, at light, 3,300 ft., 19.iii.1928 (H. M. Pendlebury) ; in F.M.S. Museum. Holotype presented to British Museum.

A distinct species, which cannot be confused with any other.

62. **Euproctis erema** sp. nov. (plate I, fig. 25).

♀. Palpus and head pale yellow-orange, palpus porrect, third segment downturned. Antenna cinnamon-buff. Thorax light buff mixed with ochraceous-tawny. Abdomen fuscous, the basal segments lighter ; anal tuft rather large, pinkish buff. Pectus and venter light buff ; legs pale yellow-orange. Forewing antimony-yellow, irrorated with ochraceous-tawny and fuscous ; a broad medial band formed by an increase in the fuscous irroration, bordered proximally by a light-coloured almost straight antemedial fascia running at right angles to the inner margin, and bordered distally by a light-coloured postmedial

fascia bowed (convexity terminad) from costa to vein *Cu*2, thence parallel with the termen to the inner margin ; two large circular preterminal fuscous spots, one between veins *R*4 and *R*5, the other between veins *M*1 and *M*2 ; fringe antimony-yellow mixed with ochraceous-tawny. Hindwing drab ; fringe tilleul-buff. *Underside* of forewing drab ; terminal area lighter ; fringe antimony-yellow. *Underside* of hindwing tilleul-buff slightly shaded with drab ; fringe tilleul-buff.

Expanse : 31 mm.

1 ♀ (holotype), Bukit Kutu, Selangor, at light, 3,500 ft., 18.iii.1931 (H. M. Pendlebury) ; F.M.S. Museum. Kindly presented to British Museum.

Resembles *E. icelomorpha* Swinh. (1906) and *E. perplexa* Swinh. (1903), but with a broader medial band in the forewing, and without the whitish line joining the antemedial and postmedial fascias.

63. **Euproctis acodes** sp. nov. (plate 1, fig. 2).

♂. Palpus upturned, cinnamon-brown. Antennal shaft cinnamon-brown, pectinations ochraceous-tawny. Head ochraceous-buff. Thorax sayal-brown. Abdomen above and beneath snuff-brown, somewhat lighter dorsally towards the base ; anal tuft ochraceous-buff, lighter at the base. Pectus ochraceous-buff. Legs pinkish buff to ochraceous-buff. Forewing with ground-colour tilleul-buff, and covered with scales of fuscous and yellow-ochre in roughly even proportions, the whole giving an effect of tawny-olive ; costal area above the upper margin of the cell and vein *R*2 slightly darker and with scales of only one colour ; a rather large round fuscous spot on the discocellulars ; fringe tawny-olive. Hindwing and fringe slightly darker than forewing. *Underside* of forewing tawny-olive, grading to pinkish buff in the subterminal area ; fringe pinkish buff. *Underside* of hindwing pinkish buff, shading to tawny-olive in the inner marginal and basal areas ; fringe pinkish buff.

Expanse : ♂♂ 39–40 mm.

1 ♂ (holotype), Bukit Kutu, Selangor, at light, 3,500 ft., 13.iv.1926 (H. M. Pendlebury) ; 1 ♂, Tanah Rata, Cameron's Highlands, Pahang, 4,800 ft., 10.xii.1924 (J. Kedit) ; F.M.S. Museum. Holotype presented to British Museum.

Somewhat resembles *E. ridleyi* Swinh. (1906), but without the light border to the hindwing, and with much less prominent irroration on the forewing. The forewing also is shorter and more rounded.

64. **Euproctis rubiginosa** Snell.

Euproctis rubiginosa Snell., *Tijdschr. v. Ent.*, xx, p. 10, pl. 1, fig. 3 (1877) ; Seitz, *Grossschm. d. Erde*, x, p. 350, pl. 47g (1918).

Type, ♂, Java, in Leiden Museum.

1 ♂, at light, 6.iv.1927, Kuala Lumpur ; 1 ♂, at light, 3,500 ft., 19.iii.1931, Bukit Kutu, Selangor ; both taken by H. M. Pendlebury ; F.M.S. Museum. Expanse : 2 ♂♂, 20 mm.

These two ♂♂ agree closely with the description of Snellen's type, but I have not been able to compare them with Javanese specimens. The Bukit Kutu specimen has the basal half of forewing filled in with olive-brown.

65. **Euproctis ridleyi** Swinh.

Euproctis ridleyi Swinh., *A.M.N.H.* (7), xvii, p. 542 (1906); Seitz, *Grossschm. d. Erde*, x, p. 350 (1918).

Type, ♂, Singapore, in British Museum.

3 ♂♂, Singapore; in British Museum. 1 ♂, Penang; 1 ♂, 3,000 ft., Bukit Kutu, Selangor; in Tring Museum. 10 ♂♂, 3,450–3,500 ft., Bukit Kutu; 1 ♀ (neallotype), 3,500 ft., 19.iii.1931, Bukit Kutu (H. M. Pendlebury); 2 ♂♂, Kuala Lumpur; 1 ♂, The Gap, Pahang; in F.M.S. Museum. Neallotype presented to British Museum.

The insect described by Swinhoe as the allotype ♀ of this species is actually a ♀ of *Euproctis corbetti* Tams—see remarks under that species in this paper.

The true ♀ of *E. ridleyi* closely resembles the ♂, with the exception that the light marginal band on the hindwing is confined to the fringe, and that the underside of both wings is a uniform dark brown, with lighter fringes. Expanse (neallotype): 52 mm.

This species appears to come very close to *Euproctis fumosa* Snell., 1877 (Sumatra). Van Eecke remarks (*Zool. Med. Leiden*, xi, p. 119, 1928) that Snellen has given a not entirely correct figure of the ♂, and illustrates it afresh on pl. x, fig. 1. As I have seen no Sumatran specimens of *E. fumosa*, I am unable to say whether *E. ridleyi* should sink to it.

66. **Euproctis perplexa** Swinh.

Euproctis perplexa Swinh., *Trans. Ent. Soc. Lond.*, p. 422 (1903); Seitz, *Grossschm. d. Erde*, x, p. 350, pl. 44c (1918).

Type, ♀, Singapore, in British Museum.

2 ♀♀, Singapore; in British Museum. 1 ♀, Kuala Lumpur; in F.M.S. Museum.

The 3 ♀♀ other than the type have a subterminal spot between veins *R*4 and *R*5 in the apex of the forewing, and in one case a further much smaller spot between veins *R*3 and *R*4.

The ♂ of this species appears to be unknown.

67. **Euproctis hypolispa** sp. nov. (plate 1, fig. 6).

♀. Palpus porrect, ochraceous-buff. Head and antennal shaft warm buff, the pectinations lighter. Patagium Mars yellow, remainder of thorax, and abdomen above and beneath, snuff-brown to bistre; anal tuft ochraceous-buff. Pectus light buff, legs light buff to warm buff. Forewing drab; fringe warm buff. Hindwing light drab; fringe light buff to warm buff. *Underside* of both wings drab to light drab; fringes as on upperside.

Expanse: ♀♀ 38–44 mm.

1 ♀ (holotype) and 1 ♀ (paratype), Tanah Rata, Cameron's Highlands, Pahang, at light, 4,800 ft., 19.v.1931; 1 ♀ (paratype), Jor Camp, Batang Padang, Perak, at light, 1,800 ft., 26.ii.1928; all taken by H. M. Pendlebury; F.M.S. Museum. Holotype presented to British Museum.

68. **Euproctis adela** sp. nov. (plate 1, fig. 3).

♀. Palpus porrect, warm sepia. Antenna and head Verona brown. Patagium Mars yellow, remainder of thorax Verona brown. Abdomen above and

beneath warm sepia ; anal tuft large and bushy, Saccardo's umber, grading to pinkish buff at the base above and to cinnamon-buff beneath. Pectus and legs Verona brown. Forewing Verona brown ; a faint light-coloured postmedial fascia (not visible in the paratype) running at right angles to the costa down to vein *M* 3, thence roughly parallel with termen to inner margin ; fringe warm buff. Hindwing hair-brown, becoming lighter towards the termen ; fringe light buff. *Underside* of both wings, and fringes, as on upperside.

Expanse : ♀♀ 33–34 mm.

1 ♀ (holotype), 17.i.1931, and 1 ♀ (paratype), 12.iv.1931, at light, Kuala Lumpur (H. M. Pendlebury) ; F.M.S. Museum. Holotype presented to British Museum.

69. **Euproctis phaula** sp. nov. (plate I, fig. 14).

♂. Palpus upturned, warm buff. Antennal shaft light buff, pectinations cinnamon-buff. Head and thorax warm buff. Abdomen drab, somewhat lighter towards the base ; anal tuft pinkish buff. Pectus, venter and legs pale pinkish buff to pinkish buff. Forewing cinnamon-buff ; fringe pale pinkish buff. Hindwing drab ; fringe pale pinkish buff. *Underside* of both wings pale pinkish buff, somewhat shaded with drab ; fringes pale pinkish buff.

♀. Palpus with second segment porrect, the third downturned. Abdomen, fore- and hindwing on upper side rather darker than in the ♂.

Expanse : ♂♂ 23–25 mm., ♀ 39 mm.

1 ♂ (holotype), 14.iii.–18.iv.1928, 1 ♀ (allotype) January 1897, 1 ♂ (paratype), May 1898, all Penang (Curtis) ; in Tring Museum.

The ♀ is lighter, larger in expanse and with a smaller anal tuft than *E. adela*, and has not the warm buff fringes of *E. hypolispa*. I have decided to include the ♀ under the same name as the two ♂♂, but this is subject to confirmation when further material comes to hand.

70. **Euproctis isabellina** Heyl.

Porthesia isabellina Heyl., *C.R. Soc. Ent. Belg.* xxxvi, p. 9 (1892) ; Seitz, *Grossschm. d. Erde*, x, p. 334 (1915).

Type, ♀, Padang Rengas, Sumatra, in Leiden Museum.

1 ♀, 10.vi.1921, Kuala Lumpur (H. M. Pendlebury) ; in F.M.S. Museum.

71. **Euproctis funeralis** Swinh.

Euproctis funeralis Swinh., *Trans. Ent. Soc. Lond.* p. 421 (1903) ; Seitz, *Grossschm. d. Erde*, x, p. 349 (1918).

Type, ♂, Singapore, in British Museum.

3 ♀♀, Singapore ; in British Museum. 1 ♀, Penang ; in Tring Museum. 1 ♀, Kuala Lumpur ; in F.M.S. Museum.

The specimen described by Swinhoe as the allotype ♀ of *E. funeralis* is in the British Museum, and does not belong to this species, but to *E. pelopicta* Collnt., described below.

The true ♀ matches the ♂ in colour of forewing, which has a greenish-yellow tinge ; the veins on the forewing are lighter than the ground-colour, and the wing is covered with dark irroration. The hindwing may be described in Swinhoe's words : " Entirely blackish brown with pale yellowish outer margins." Expanse : ♀♀ 51–53 mm.

The illustration of the ♀ in Seitz, x, pl. 43c, evidently represents another species, but van Eecke's illustration in *Zool. Med. Leiden*, xi, pl. ix, fig. 14 (1928), appears to be correct.

In this species there is no trace of a postmedial fascia on the forewing, such as occurs in *E. pelopicta* Collnt. and *E. peperites* Collnt.

72. **Euproctis pelopicta** sp. nov. (plate II, fig. 33).

♂. Palpus clay-colour, the second segment fuscous laterally and above. Antennal shaft pinkish buff, pectinations cinnamon-buff. Head and patagium cinnamon-buff to orange-buff, remainder of thorax clay-colour. Abdomen bone-brown; anal tuft orange-buff. Pectus and legs clay-colour to tawny-olive, venter tawny-olive. Forewing light buff, irrorated thickly with cinnamon-brown, giving a tawny-olive effect; a postmedial fascia, straight and fairly well defined, slightly darker than the ground-colour, roughly parallel with the termen, running from vein *M* 1 at one-half to the inner margin at two-thirds; fringe light buff. Hindwing light buff, covered so thickly with Verona brown as practically to obscure the ground-colour except in the costal and terminal areas; inner marginal area with long silky hair-scales of Verona brown; fringe light buff. *Underside* of forewing light buff irrorated with Verona brown, which except beyond the cell and in the terminal area is thick enough to obscure the ground-colour; costal area broadly cinnamon-buff; fringe light buff. *Underside* of hindwing light buff irrorated with Verona brown, which basad of a line from the costa at one-third through the lower angle of the cell to the termen is thick enough to obscure the ground-colour; fringe light buff.

♀. Resembles the ♂, but with head, patagium and anal tuft less bright. The postmedial fascia is less pronounced, but is faintly visible in almost all the paratypes. The hindwing on upperside, and both wings on underside, are lighter as a whole, but the light buff is almost obscured, and only visible to a slight extent in the terminal areas.

Expanse: ♂♂ 55–56 mm., ♀♀ 63–78 mm.

1 ♂ (holotype), 1 ♀ (allotype) and 2 ♀♀ (paratypes), Singapore (H. N. Ridley); 1 ♀ (paratype), Singapore (E. E. Green); 1 ♀ (paratype), Penang (Biggs); in British Museum. 1 ♀ (paratype), Singapore; in Zoological Museum, Berlin. 1 ♂ (paratype), Kuala Lumpur, 13.iii.1928, larva on *Ficus elastica*; in coll. Agric. Dept., Kuala Lumpur. 3 ♀♀ (paratypes), Kuala Lumpur, at light, 24.iii.1931, 22.vii.1929 and 30.ix.1931 (H. M. Pendlebury); 1 ♀ (paratype), Bukit Kutu, Selangor, at light, 3,500 ft., 15.iv.1926 (H. M. Pendlebury); in F.M.S. Museum.

The presence of a postmedial fascia differentiates this species from *E. funeralis* Swinh. (1903), and the absence of a discocellular spot from *E. fumosa* Snell. (1877).

73. **Euproctis peperites** sp. nov. (plate II, fig. 34).

♂. Palpus short, slightly upturned, warm buff. Antennal shaft drab, pectinations buckthorn-brown. Head and thorax warm buff. Abdomen Prout's brown, the basal segments warm buff; anal tuft warm buff. Pectus and legs warm buff, the femora and tibiae fringed with long hair-scales. Venter Prout's brown. Forewing light buff, irrorated thickly and evenly with scales of

Prout's brown and yellow-ochre, the whole giving an effect in which the yellow-ochre predominates; veins rather lighter than the remainder of the wing; a postmedial fascia, straight and fairly well defined, cinnamon-brown, roughly parallel with the termen, running from vein *M*1 at one-half to the inner margin at a little more than one-half; fringe light buff, mixed interneurally with Prout's brown and yellow-ochre. Hindwing cinnamon-brown, mixed with light buff in the terminal and costal areas; fringe light buff mixed sparsely with cinnamon-brown. *Underside* of both wings light buff mixed heavily with cinnamon-brown; terminal areas rather lighter: costa of forewing narrowly light buff; fringes light buff mixed sparsely with cinnamon-brown.

♀. Resembles the ♂, but with head and thorax somewhat darker. Forewing and postmedial fascia of almost exactly the same appearance as in the ♂. Upperside of hindwing, and underside of both wings, with less admixture of light buff in the terminal areas.

Expanse: ♂♂ 49–53 mm., ♀♀ 56–61 mm.

2 ♂♂ (holotype and paratype), The Gap, Pahang, 1920; in F.M.S. Museum. 1 ♀ (allotype), Penang, 2,260 ft., 20.iii.1928 (S. S. Flower); in British Museum. 3 ♀♀ (paratypes), Penang (Curtis); in Tring Museum. Holotype presented to British Museum.

In addition there are 4 ♀♀ in the F.M.S. Museum, from 3,500 ft. on Bukit Kutu and Lubok Tamang, which resemble this species rather closely. They are larger and slightly lighter, with a paler thorax, and with no trace of the postmedial fascia. In the absence of ♂♂ I have thought it best to leave these insects undescribed, although I believe that probably they represent a distinct species.

The postmedial fascia in *E. peperites* finishes farther from the tornus than in *E. pelopicta*, while yellow-ochre predominates in the forewing as compared with tawny-olive in *E. pelopicta*.

74. **Euproctis epinephela** sp. nov. (plate I, fig. 1).

♀. Palpus, head, antennal shaft, patagium and tegula light orange-yellow. Pectinations of antenna pale orange-yellow. Thorax posteriorly drab. Abdomen above and beneath Natal brown; anal tuft antimony-yellow. Pectus and legs pale orange-yellow to light orange-yellow. Forewing drab to benzo-brown; costa very narrowly and terminal area for a depth of about 1½ mm. buff-yellow, wider across the apex, and approaching nearest to the termen between veins *M*3 and *Cu*1; a rather ill-defined spot of the same colour as the main area of the wing on vein *M*1, about 1 mm. in diameter and ½ mm. from the termen; fringe buff-yellow. Hindwing drab to benzo-brown; fringe buff-yellow, this colour also narrowly invading the wing near the anal angle. *Underside* of forewing drab to benzo-brown, terminal area narrowly buff-yellow, slightly wider across the apex; fringe buff-yellow. *Underside* of hindwing as on upperside.

Expanse: 48 mm.

1 ♀ (holotype), Singapore, 14.ii.1923; F.M.S. Museum. Kindly presented to British Museum.

This species resembles *E. flavolimbata* Auriv. (1894), but has a greater area of buff-yellow in the forewing and a subterminal spot. There is a possibility that it may be the true ♀ of *E. cincta* Swinh. (1906), in which case Swinhoe's

allotype ♀ (which seems too small to be associated with the ♂) would require a new name.

75. **Euproctis transversa** Moore.

Artaxa transversa Moore, *Cat. Lep. Mus. E.I.C.* ii, p. 352, pl. 9a, fig. 8 (1859).
Euproctis transversa Moore, Seitz, *Grossschm. d. Erde*, x, p. 352, pl. 44a (1918).
Euproctis humida Swinh., *A.M.N.H.* (7), xvii, p. 543 (1906); Seitz, *l.c.*, p. 340 (1915).

Type, ♀, Java, in British Museum.

Type (*humida*), ♂, Singapore, in British Museum.

7 ♂♂, 3 ♀♀, Singapore; 1 ♂, 1 ♀, Perak; 1 ♀, Selangor; in British Museum. 1 ♂, Singapore; 1 ♂, Penang; 2 ♀♀, Padang Rengas; 2 ♀♀, Gunong Ijau; 1 ♀, Taiping; in Tring Museum. 5 ♂♂, 4,800 ft., Tana Rata, Cameron's Highlands; 1 ♂, 3,500 ft., Lubok Tamang, Pahang; 1 ♀, 4,000 ft., Fraser's Hill, Pahang; 1 ♀, 3,500 ft., Bukit Kutu, Selangor; 1 ♀, near Jitra, Kedah; 5 ♂♂, Taiping; in F.M.S. Museum.

Swinhoe's *E. humida* is clearly the ♂ of *E. transversa*, but I cannot trace that this fact has been noted previously. In both sexes the venation departs from that usually found in *Euproctis*, by vein *R*1 anastomosing shortly with the stalk of *R*2 to *R*5 to form an areole, but in other respects the species conforms to the genus.

76. **Euproctis coelebs** sp. nov. (plate II, fig. 45).

♂. Palpus upturned, warm buff, on the outer side darker. Antennal shaft light buff, pectinations ochraceous-tawny. Head and patagium capucine-yellow, shading to cinnamon-buff on the remainder of the thorax; tegula long and bushy. Abdomen above and beneath fuscous; anal tuft orange-buff. Pectus and legs light buff mixed with warm buff. Forewing warm buff, irrorated rather evenly over the whole wing with fuscous; a series of three large equidistant antemedial fuscous spots, oblique outwardly from the inner margin at one-third, one of the spots being below the anal vein, another above it, the third below the origin of vein *Cu*2; a similar fuscous spot on the centre of the discocellulars; a series of postmedial interneural fuscous spots commencing below vein *M*2 at a point rather closer to the termen than the cell, running parallel with the termen to below vein *Cu*2, thence oblique outwardly to the inner margin; the antemedial spots have a somewhat indistinct border of white distally and the postmedial spots a similar border proximally, while in some specimens there is also a white border round the discocellular spot; fringe warm buff. Hindwing fuscous, mixed with warm buff in the costal area; fringe warm buff. *Underside* of forewing fuscous; area above subcostal vein warm buff; distal fourth of wing, inner marginal area and fringe, light buff. *Underside* of hindwing fuscous, grading to light buff in distal third of wing, the division running approximately from the costa at two-thirds to the anal angle; fringe light buff.

Expanse: ♂♂ 36–42 mm.

1 ♂ (holotype) and 3 ♂♂ (paratypes), at light, March 1931, 2 ♂♂ (paratypes), September 1929, all 3,500 ft., Bukit Kutu, Selangor (H. M. Pendlebury); 1 ♂ (paratype), 3,400 ft., August 1915, Bukit Kutu; F.M.S. Museum. 1 ♂, Penang, March 1898 (Curtis); Tring Museum. Holotype and one paratype presented to the British Museum.

This species appears to be quite distinct from *E. transversa* Moore (1859), in which there is a closed areole in the forewing and a postmedial fascia running

from costa to inner margin. *E. coelebs* has no areole. Moreover, the type ♀ of *E. transversa* measures only 35 mm., which is smaller than any ♂ in the present series. The ♀ of *E. coelebs* probably measures not less than 50 mm.

77. **Euproctis innupta** sp. nov. (plate II, fig. 46).

♀. Palpus porrect, pinkish buff ; the third segment rather long, downturned, darker. Antennal shaft sayal brown, pectinations Verona brown. Head and thorax Mars yellow. Abdomen above and beneath fuscous ; anal tuft buffy brown above, lighter at the base, on the underside light buff. Pectus and legs sayal brown to snuff-brown. Forewing clay-colour, irrorated over the whole wing with fuscous, most thickly between postmedial and termen, more sparsely between antemedial and base ; a series of four large antemedial fuscous spots, one in the cell, two between cell and anal vein, one below anal vein, the series being bowed slightly towards the termen, and directed at right angles to the inner margin ; a series of postmedial interneural fuscous spots, those between *R*4, *R*5 and *M*1 larger than the remainder, running at right angles from the costa at three-quarters to vein *Cu*1, thence bowed (concavity terminad) to inner margin ; the antemedial spots have a border of white distally and the postmedial spots a similar border proximally ; fringe cinnamon-buff. Hindwing hair-brown ; fringe cinnamon-buff. *Underside* of forewing Saccardo's umber, mixed in the terminal area with pinkish buff, area above subcostal vein clay-colour ; fringe cinnamon-buff. *Underside* of hindwing Saccardo's umber, mixed sparsely in the apical area with pinkish buff ; fringe cinnamon-buff.

Expanse : ♀♀ 53–56 mm.

1 ♀ (holotype), 19.iv.1931, 3 ♀♀ (paratypes), January 1931, 1 ♀ (paratype), April 1931, 2 ♀♀ (paratypes), May 1931, all at light, Kuala Lumpur (H. M. Pendlebury) ; F.M.S. Museum. Holotype and one paratype presented to British Museum.

The bowed antemedial fascia, absence of spot on the discocellulars, and continuance of postmedial fascia to the costa, serve to separate this species from *E. coelebs*. Moreover, vein *R*1 anastomoses shortly with vein *R*4 to form an areole.

It is also very different in appearance from *E. transversa* Moore on account of the larger size, larger and more conspicuous spots, and bowed antemedial.

Although the ♀♀ of this species appear to be not uncommon at Kuala Lumpur, I am unable to find a ♂ in the material before me. It may be possible to obtain the ♂ by breeding from a captured specimen.

78. **Euproctis phloeochroa** sp. nov. (plate II, fig. 35).

♂. Palpus, head and thorax argus brown, mixed sparsely on the frons with pinkish buff. Antennal shaft pinkish buff, pectinations snuff-brown. Abdomen Saccardo's umber, anal tuft cinnamon-buff. Pectus and legs pinkish buff mixed with snuff-brown, the legs fringed with long hair-scales. Venter pinkish buff. Forewing snuff-brown, slightly darker between the costa and the upper margin of the cell ; a Brussels-brown antemedial fascia, almost straight, angled inwardly at the anal vein, and roughly at right angles to the inner margin ; an indication of a Brussels-brown streak on the discocellulars ; a Brussels-brown postmedial fascia, bowed inwardly from costa to vein *Cu*2, thence outwardly oblique to the inner margin ; just beyond the postmedial a series of interneural fuscous spots ;

a dark line along the termen : fringe snuff-brown. Hindwing and fringe Saccardo's umber, with a dark line along the termen. *Underside* of both wings, and fringes, pinkish buff, mixed sparsely with snuff-brown, the latter predominating in and beyond the cell of forewing.

Expanse : ♂♂ 37–43 mm.

1 ♂ (holotype), 13.iv.1926, and 1 ♂ (paratype), 22.iii.1931, Bukit Kutu, Selangor, 3,500 ft. ; 1 ♂ (paratype), Jor Camp, Batang Padang, Perak, 5.iii.1924, 1,800 ft. ; all at light (H. M. Pendlebury) ; 1 ♂ (paratype), Kuala Tahan, Pahang, March 1921 ; 1 ♂ (paratype), Taiping, Perak ; both taken by E. Seimund ; F.M.S. Museum. Holotype presented to the British Museum.

79. **Euproctis linta** Moore.

Artaxa linta Moore, *Cat. Lep. Ins. Mus. E.I.C.* ii, p. 351 (1859).
Euproctis linta Moore, Seitz, *Grossschm. d. Erde*, x, p. 352, pl. 44e (1918).
Euproctis nubilosa van Eecke, *Zool. Med. Leiden*, xi, p. 121 (1928).

Type, ♀, Java, in British Museum.

15 ♂♂ and 1 ♀, Penang ; in Tring Museum. 1 ♂, Kuala Lumpur ; 1 ♀, 3,500 ft., Bukit Kutu, Selangor ; in F.M.S. Museum.

Van Eecke states (*l.c.*, p. 121) that the species which Strand in Seitz takes for *E. linta* Moore, and illustrates, is not in fact that species, because in the original description of *E. linta* there is no mention of the apical brown spot in the forewing. Actually it is the original description which is at fault, for an examination of the type shows that the spot is plainly present on both wings, but being somewhat worn had been overlooked by Moore. Van Eecke's very excusable assumption has led him to describe this species afresh as *E. nubilosa*, but this name must now sink. *E. hemibathes* Swinh. (1906), sunk by van Eecke in the course of the same discussion, remains as a good species.

80. **Euproctis cosmia** sp. nov. (plate I, fig. 17).

♂. Palpus, antenna and head antimony-yellow. Patagium antimony-yellow ; tegula antimony-yellow at base, sayal-brown distally ; remainder of thorax drab. Abdomen drab, anal tuft ochraceous-buff. Pectus pale pinkish buff. Legs cream-colour, the foreleg fringed with long hair-scales. Venter pinkish buff. Forewing with basal half benzo-brown, the distal edge of this area semicircular (convexity terminad) running from the costa at one-half to the inner margin at two-thirds ; remainder of wing, and fringe, buff-yellow. In some specimens the extreme edge of basal half of costa is buff-yellow. Hindwing cream-buff, the basal area from costa at one-third to inner margin at two-thirds benzo-brown ; fringe cream-buff. *Underside* of forewing as on upperside, but the buff-yellow replaced by cream-buff ; fringe buff-yellow. *Underside* of hindwing as on upperside, but the benzo-brown area somewhat reduced.

Expanse : ♂♂ 25–27 mm.

1 ♂ (holotype), 10.iv.1931, 1 ♂ (paratype), 24.i.1931, 1 ♂ (paratype), 19.x.1921, all at light, Kuala Lumpur (H. M. Pendlebury) ; 1 ♂ (paratype), Cheras, Selangor, at light, 2.v.1927 (E. Seimund) ; F.M.S. Museum. Holotype presented to the British Museum.

This species appears to be identical with that illustrated by van Eecke in *Zool. Med. Leiden*, xi, pl. x, fig. 3, under the name of *E. linta* Moore. For further particulars, see remarks under the name of that species in the present paper.

E. cosmia is somewhat similar to *E. hemibathes* Swinh. (1906), but has a much smaller area of benzo-brown on both fore- and hindwing.

81. **Euproctis eumorpha** sp. nov. (plate I, fig. 5).

♂. Palpus, antenna, head and patagium ochraceous-buff to orange-buff; remainder of thorax drab. Abdomen drab above and beneath, anal tuft ochraceous-buff. Pectus pale pinkish buff. Legs cream-colour, the foreleg fringed with long hair-scales. Forewing with basal two-thirds benzo-brown, the distal edge of this area running from the costa at two-thirds, bowed (convexity apical) to vein *Cu*1 at two-thirds, thence parallel with the termen to the inner margin; remainder of wing, and fringe, maize-yellow. Hindwing with basal half benzo-brown, the distal edge of this area running from the costa at one-half, outwardly oblique to vein *Cu*2 at two-thirds, thence parallel with the termen to the inner margin; remainder of wing, and fringe, cartridge-buff. *Underside* of both wings as on upperside, but the maize-yellow on the forewing replaced by cartridge-buff.

Expanse: 34 mm.

1 ♂ (holotype), Fraser's Hill, Pahang, 4,000 ft., 31.i.1929 (H. M. Pendlebury); F.M.S. Museum. Presented to British Museum.

Resembles the last species *E. cosmia* and also *E. hemibathes* Swinh., but can be easily separated by the shape of the benzo-brown areas on fore- and hindwings.

82. **Euproctis obscura** Moore.

Artaxa obscura Moore, *Cat. Lep. Mus. E.I.C.* ii, p. 351 (1859).
Euproctis obscura Moore, Seitz, *Grossschm. d. Erde*, x, p. 352 (1918).

Type, ♀, Java, in British Museum.

1 ♂, Singapore; 2 ♂♂, Serdang, Selangor, larva feeding on *Terminalia catappa*; in British Museum.

Expanse, 3 Malayan ♂♂, 12–15 mm.

The above ♂ from Singapore was referred to this species by Swinhoe, and the two Serdang ♂♂ agree with the Singapore specimen. In the absence of adequate Javanese material it is not possible to confirm the determination, but it appears correct.

In the apex of the forewing is a small black spot, not mentioned in the original description, but visible in the type ♀ and conspicuous in the ♂♂.

83. **Euproctis flavolimbatulana** Strand.

Euproctis flavolimbatulana Strand, in Seitz, *Grossschm. d. Erde*, x, p. 351, pl. 44c (1918).

Type, ♀, Java, in coll. Seitz.

1 ♂, at light, 1.vi.1927, Gintang-Sempak Pass, Selangor-Pahang (H. M. Pendlebury); in F.M.S. Museum.

I have not seen the type of this species, but the present specimen answers well to Strand's description and illustration. Expanse (♂) 28 mm.

84. **Euproctis subrana** Moore.

Artaxa subrana Moore, *Cat. Lep. Mus. E.I.C.* ii, p. 351 (1859).
Euproctis subrana Moore, Seitz, *Grossschm. d. Erde*, x, p. 352, pl. 44b (1918).

Type, ♀, Java, in British Museum.

1 ♂, 1 ♀, Singapore; in British Museum. 7 ♂♂, Kuala Lumpur; 1 ♀, 1,800 ft., Batang Padang, Perak; in F.M.S. Museum.

The two Malayan ♀♀, as compared with the type ♀ from Java, are considerably darker, and the white spots on the forewing larger. Of Javanese specimens I have seen only the type; further material may possibly show subspecific distinction.

85. **Euproctis guttulata** Snell.

Euproctis guttulata Snell., *Tijds. voor Ent.* xxix, p. 36, pl. 1, fig. 3 (1886); Seitz, *Grossschm. d. Erde*, x, p. 353 (1918).

Type, ♀, Sumatra, in Leiden Museum.

1 ♂, 5 ♀♀, Singapore; 2 ♀♀, Malacca; 1 ♀, Dindings; 2 ♀♀, Province Wellesley; in British Museum. 1 ♀, Perak; 2 ♀♀, Gunong Ijau; 3 ♀♀, Penang; in Tring Museum. 3 ♀♀, Kuala Lumpur; 2 ♀♀, Singapore; in F.M.S. Museum.

The spot on the forewing of the ♀ is at the origin of veins *M*2, *M*3 and *Cu*1, and may vary considerably in size in specimens from the same locality.

I have examined the type of *Euproctis* (*Adlullia*) *praecurrens* Wlkr. (1865), which is a ♀, not ♂ as stated in the original description, and quite distinct from the present species. The spot on the forewing is below the junction of vein *Cu*2 with the cell. The figure shown as *praecurrens* on pl. 43e of Seitz, vol. x, is evidently *guttulata*.

The ♂ of *E. guttulata*, of which I have seen only one specimen, resembles *E. boleora* Swinh. (1892). I have not been able to examine critically the type ♂ of the latter, but it may prove to be nothing more than a synonym of *guttulata*.

86. **Euproctis orgyioides** v. Eecke.

Euproctis orgyioides v. Eecke, *Zool. Med. Leiden*, xi, p. 113, pl. ix, figs. 9 and 9a (1928).

Type, ♂, Sumatra, in Leiden Museum.

1 ♂, 1,000 ft., May 1898, Government Hill, Penang (Curtis); in British Museum. 1 ♂, 18.xii.1928, larva on *Cinnamomum zeylanicum*, Kuala Lumpur (G. H. Corbett); 1 ♂, at light, 3,300 ft., 23.iii.1928, Kedah Peak (H. M. Pendlebury); in F.M.S. Museum.

In pattern of forewing, the ♂ of this species strongly resembles *Orgyia nucula* Swinh., *A.M.N.H.* (6), xiv, p. 435 (1894), which, however, is much larger, and with the hindwing black. The latter species is a *Euproctis*, and should be transferred to that genus; it has two pairs of spurs on the hindtibia, and no areole in the forewing.

87. **Euproctis bifurcata** v. Eecke.

Euproctis bifurcata v. Eecke, *Zool. Med. Leiden*, xi, p. 122, pl. x, figs. 5 and 5a (1928).

Type, ♂, Sumatra, in Tring Museum.

1 ♂, 2,800 ft., Gap, Pahang; 1 ♂, 3,450 ft., Bukit Kutu, Selangor; in British Museum. 1 ♂, without data; 2 ♂♂, 3,450–3,500 ft., Bukit Kutu, Selangor; in F.M.S. Museum.

These ♂♂ are larger (34–36 mm.) than the measurement given for the type (30 mm.), and the yellow margin to the wings is rather better defined. From Sumatra I have seen only the type, and in the absence of further specimens have treated the Malayan form as inseparable.

88. **Euproctis solitaria** v. Eecke.

Euproctis solitaria v. Eecke, *Zool. Med. Leiden*, xi, p. 129, pl. x, fig. 11 (1928).

Type, ♀, Sumatra, in Leiden Museum.

1 ♀, 3,400 ft., August 1915, Bukit Kutu, Selangor ; in F.M.S. Museum.

This single ♀ agrees well with van Eecke's figure, but has a considerably greater expanse—54 mm. as against 38 mm.

89. **Euproctis alboscripta** v. Eecke.

Euproctis alboscripta v. Eecke, *Zool. Med. Leiden*, xi, p. 115, pl. ix, fig. 11 (1928).

Type, ♂, Sumatra, in Leiden Museum.

2 ♂♂, Waterfall Valley, Penang, March–April 1898 (Curtis) ; in Tring Museum.

These two ♂♂ appear to conform to van Eecke's description and figure. The species is related to *Euproctis faceta* Swinh. (1903), of New Guinea.

90. **Euproctis chalcostoma** sp. nov. (plate I, fig. 11).

♂. Palpus porrect, orange-buff. Antennal shaft maize-yellow, pectinations pinkish buff. Head orange-buff, frons lighter. Patagium and tegula orange-buff, remainder of thorax benzo-brown. Abdomen above and beneath pinkish buff. Pectus pale pinkish buff. Legs light buff to warm buff. Forewing benzo-brown ; terminal area rather narrowly maize-yellow (width at vein *M* 3, ¾ mm.), wider across the apex, and continued narrowly along the costa ; fringe maize-yellow. Hindwing light buff, the basal two-thirds very lightly shaded with benzo-brown ; fringe light buff. *Underside* of forewing as on upperside, but the benzo-brown area more pale, and the maize-yellow replaced by light buff. *Underside* of hindwing, and fringe, light buff.

♀. Resembles the ♂ in facies. Anal tuft orange-buff. Light buff area on upperside of hindwing restricted to the distal fourth of the wing, and its division from the benzo-brown area better defined than in the ♂. *Underside* of hindwing with basal two-thirds benzo-brown.

Expanse : ♂ 20 mm., ♀ 25 mm.

1 ♂ (holotype), Bukit Kutu, Selangor, 3,500 ft., 12.ix.1929 ; 1 ♀ (allotype), Fraser's Hill, Pahang, 4,200 ft., at light, 4.vii.1931 ; both taken by H. M. Pendlebury ; F.M.S. Museum. Types kindly presented to British Museum.

Evidently resembles *E. pumilia* v. Eecke (1928), of which, however, I have seen no examples. In *E. pumilia* the hindwing appears to be entirely dark apart from the fringe, while in the forewing the light area is also more restricted than in the present species.

91. **Aroa lithosioides** Wlkr.

Amsacta lithosioides Wlkr., *Journ. Linn. Soc. Lond.* (*Zool.*), vi, p. 127 (1862).
Aroa lithosioides Wlkr., Seitz, *Grossschm. d. Erde*, x, p. 303 (1915).

Type, ♂, Sarawak, in Oxford Museum.

1 ♂, Malacca (Künstler) ; in Zoological Museum, Berlin.

92. **Aroa scytodes** sp. nov. (plate II, fig. 44).

♂. Palpus and head capucine-yellow. Antennal shaft drab, the pectinations darker. Patagium capucine-yellow, remainder of thorax buckthorn-brown. Abdomen Prout's brown, anal tuft capucine-yellow. Pectus, venter and legs warm buff mixed with buckthorn-brown, the front of the pectus capucine-yellow. Forewing Dresden brown; on the discocellulars a conspicuous patch of light buff; terminal area for a depth of about 1 mm. antimony-yellow, this colour continued narrowly for a short distance along the costa and inner margin; fringe light buff mixed with antimony-yellow. Hindwing Prout's brown; fringe as in forewing. *Underside* of both wings snuff-brown; a small light buff patch on the discocellulars of the forewing; terminal area of forewing and fringes of both wings as on upperside.

Expanse: 28 mm.

1 ♂ (holotype), Jor Camp, Batang Padang, Perak, at light, 1,800 ft., 26.ii.1924 (H. M. Pendlebury); F.M.S. Museum. Presented to British Museum.

May be placed near to *Aroa lithosioides* Wlkr. (1862).

93. **Aroa socrus** Geyer.

Gynaephora socrus Geyer, *Zuträge Exot. Schmett.* v, p. 12, figs. 837–838 (1837).
Aroa socrus Geyer, Seitz, *Grossschm. d. Erde*, x, p. 304, pl. 47a (1915).

Type, ♂, Java.

1 ♂, 3,500 ft., 19.vi.1921, Gunong Jerai, Kedah; in F.M.S. Museum.

The Assam form, *A. substrigosa* Wlkr., *List Lep. Ins. B.M.* iv, p. 794 (1855), has been treated by most writers as a synonym of the Javanese *A. socrus*. I have compared the ♂ genitalia of three Javanese specimens, two Assam specimens, one from Hongkong and the above-mentioned specimen from Malaya, but there is so much individual variation that the result is rather inconclusive. In coloration, however, the Javanese ♂♂ are readily separable from the Indian, and I have no hesitation in treating them as distinct.

The single Malayan specimen is considerably rubbed, but appears to agree with *A. socrus* in coloration, while in the genitalia it also agrees better with the Javanese than the Assam form.

94. **Cassidia obtusa** Wlkr.

Cassidia obtusa Wlkr., *Proc. Linn. Soc. Lond.* (*Zool.*), vi, p. 130 (1862); Swinhoe, *A.M.N.H.* (ix), 11, p. 83 (1923).

Type, ♂, Sarawak, in Oxford Museum.

6 ♂♂, Singapore; 1 ♂, Sungei Ujong; in British Museum. 1 ♂, Kuala Pilah; 1 ♂, Batang Padang, Perak; 1 ♂, Kuala Lumpur; 1 ♂, 3,300 ft., Kedah Peak; in F.M.S. Museum.

A good series of *C. obtusa*, taken in Sarawak, is in the British Museum.

On the pin of the type at Oxford is a note in Hampson's writing: "sinks to *Dura albicans* Wlkr.," but this statement is clearly an error.

C. obtusa is omitted by Strand in Seitz, but under the name of *Aroa fenestriculata* Strand (1910) an insect is included, from Central Sumatra, which is evidently close to it or possibly identical, but of which I have not seen a specimen.

I am of opinion that Walker's genus *Cassidia* should be retained for the present species.

95. **Scarpona ennomoides** Wlkr.

Scarpona ennomoides Wlkr., *Journ. Linn. Soc. Lond.* (*Zool.*), vi, p. 123 (1862); Seitz, *Grossschm. d. Erde*, x, p. 316 (1915).

Topomesa subinanis Wlkr., *List. Lep. Ins. B.M.* xxxv, p. 1921 (1866); Seitz, *l.c.*, p. 332, pl. 39b (1915).

Type, ♀, Sarawak, in Oxford Museum.

Type (*subinanis*), ♀, Java, in British Museum.

4 ♂♂, 1 ♀, Singapore; in British Museum. 1 ♂, Mt. Ophir; 1 ♂, Perak; 1 ♂, Malay Peninsula; 1 ♀, Penang; in Tring Museum. 1 ♂, Kuala Tahan; 1 ♀, Kuala Lumpur; 1 ♀, 3,500 ft., Bukit Kutu, Selangor; 1 ♀, 3,300 ft., Kedah Peak; in F.M.S. Museum.

An examination of the genitalia of ♂♂ from Sarawak, Java and Singapore shows no distinction on which forms could be separated.

I have recently published the information (NOV. ZOOL. xxxvii, 2, p. 179, 1932) that *T. subinanis* Wlkr. sinks to *S. ennomoides* Wlkr.

96. **Numenes contrahens** Wlkr.

Numenes contrahens Wlkr., *Journ. Linn. Soc. Lond.* (*Zool.*), vi, p. 122 (1862); Seitz, *Grossschm. d. Erde*, x, p. 316 (1915).

Type, ♂, Sarawak, in Oxford Museum.

1 ♂, Government Hill, Penang; in Tring Museum. 1 ♂, Bukit Fraser, Pahang; 1 ♂, 3,500 ft., Bukit Kutu, Selangor; 1 ♂, without data; in F.M.S. Museum.

These Malayan specimens match a series of 6 ♂♂ in the British Museum from the Barisan Range, S.W. Sumatra. They are somewhat larger than Walker's type, with a broader border to the hindwing, and may prove to be separable as a geographical race.

Although *N. contrahens* is represented in the present paper only by ♂♂, and *N. siletti* only by ♀♀, the two species are certainly distinct.

97. **Numenes siletti** Wlkr.

Numenes siletti Wlkr., *List Lep. Ins. B.M.* iii, p. 663 (1855); Seitz, *Grossschm. d. Erde*, x, p. 317 (1915).

Type, ♀, Silhet, in British Museum.

1 ♀, Perak; in British Museum. 1 ♀, Gunong Tahan; in Tring Museum. 1 ♀, Kuala Lumpur; in F.M.S. Museum.

I can see no reason for separating these insects from Assam specimens, although the subterminal markings on the hindwing are more extensive than in any Indian examples I have examined, running from the costa to vein *M*2, and from vein *Cu*1 almost to the anal vein.

98. **Cobanilla phaedra** sp. nov. (plate I, fig. 24).

♂. Palpus slightly upturned, English red. Antennal shaft ochraceous-tawny, pectinations buckthorn-brown. Frons English red, vertex pale yellow-orange. Thorax and abdomen, above and beneath, pale yellow-orange. Legs missing in the type. Forewing tawny, mixed in the basal area with pale yellow-orange; basal half of costa English red; fringe tawny, tipped with auburn. Hindwing ochraceous-buff, fringe tawny. *Underside* of forewing pale yellow-

orange; the costal area to the upper margin of the cell and vein $M1$, also narrowly along the termen, but not including the apex, orange-rufous; fringe orange-rufous. *Underside* of hindwing pale yellow-orange, distal half of wing, from the costa at one-half to the anal angle, orange-rufous; fringe orange-rufous mixed with pale yellow-orange.

Expanse: 27 mm.

1 ♂ (holotype), Waterfall Valley, Penang, March–April 1898 (Curtis); in Tring Museum.

Related to *Cobanilla marginata* Moore (1883), but much more richly coloured.

99. **Laelia suffusa** Wlkr.

Ricine suffusa Wlkr., *List Lep. Ins. B.M.* iv, p. 824 (1855).
Laelia suffusa Wlkr., Seitz, *Grossschm. d. Erde*, x, p. 306, pl. 42d (1915).

Type, ♀, Java, in British Museum.

3 ♂♂, 2 ♀♀, larvae feeding on padi, 12.xii.1924, Parit Buntar (Corbett and Gater); 1 ♂, Penang; 1 ♀, Kuala Ketil, Kedah; in British Museum. 1 ♂, Singapore; in Berlin Museum. 1 ♀, 2,000–3,000 ft., Gunong Ijau; 1 ♀, Penang; in Tring Museum. 2 ♂♂, 1 ♀, Lankawi Islands; 1 ♂, Alor Star, Kedah; 2 ♀♀, Taiping; in F.M.S. Museum.

The life-history of this insect has been described in "A Note on *Laelia suffusa* Wlkr. damaging Padi," by A. R. Gater and Mohammed Yusope, *Malayan Agric. Journ.* xiii, p. 72 (1925). In this paper the determination of the species is regarded as provisional.

The type of *L. suffusa* is a ♀, and Malayan ♀♀, in the limited material before me, have a whiter forewing than the Javanese. The genitalia do not appear to differ.

In the male sex, the hindwing of the Javanese insect is usually lighter than that of the Malayan, and the expanse rather greater. The genitalia again do not appear to differ.

In these circumstances I am using the name of *L. suffusa* for the Malayan insect, although the comparison of large series might possibly show racial distinction.

100. **Laelia atestacea** Hamps.

Laelia atestacea Hamps., *Fauna Br. India*, i, p. 443 (1893); Seitz, *Grossschm. d. Erde*, x, p. 306, pl. 42c (1915).
Harapa testacea Moore, *Lep. Coll. Atk.* p. 47 (1879) (praeocc.).

Type, ♀, Darjiling.

1 ♂, 1904, Malacca (J. Waterstradt); in British Museum. 1 ♂, at light, 21.x.1925, Kuala Lumpur (A. Seimund); in F.M.S. Museum.

A comparison of the limited material available gives no grounds for distinguishing a Malay form of this species.

101. **Laelia adara** Moore.

Procodeca adara Moore, *Cat. Lep. Mus. E.I.C.* ii, p. 337 (1859).
Laelia adara Moore, Seitz, *Grossschm. d. Erde*, x, p. 307, pl. 42d (1915).

Type, ♀, Java, in British Museum.

1 ♀, at light, Kuala Lumpur; in F.M.S. Museum.

102. **Laelia melantera** sp. nov. (plate I, fig. 9).

♂. Palpus porrect, sayal brown. Antenna well developed, shaft snuff-brown, pectinations Saccardo's umber. Head, thorax and abdomen sayal brown, legs somewhat darker. Forewing buckthorn-brown; faint interneural sayal-brown patches in the angles of veins *M*2 to *Cu*2; fringe buckthorn-brown. Hindwing and fringe tawny-olive. *Underside* of both wings, and fringes, buckthorn-brown; a faint light patch on the discocellulars of the forewing, the inner marginal area also lighter.

♀. Resembles ♂, but on the upperside of forewing there is a patch on the discocellulars slightly lighter than the ground-colour. Hindwing and fringe pinkish buff, considerably lighter than the forewing.

Expanse: ♂ 29 mm., ♀ 37 mm.

1 ♂ (holotype), Sungei Ujong (Durnford); in British Museum. 1 ♀ (allotype), Kuala Tahan, Pahang, March 1921 (E. Seimund); F.M.S. Museum, kindly presented to British Museum.

Resembles *Laelia adara* Moore (1859), but a much darker insect.

103. **Laelia venosa** Moore (plate I, fig. 12).

Laelia venosa Moore, *Proc. Zool. Soc. Lond.*, p. 601 (1877); Seitz, *Grossschm. d. Erde*, x, p. 307 (1915).

Type, ♂, S. Andamans, in British Museum.

1 ♀, Singapore; in British Museum. 1 ♂, 3,000 ft., Bukit Kutu, Selangor; in Tring Museum. 2 ♂♂, Taiping; 1 ♂, 1 ♀, Kuala Lumpur; in F.M.S. Museum.

104. **Dasychira costiplaga** Wlkr.

Lacida costiplaga Wlkr., *Journ. Linn. Soc. Lond. (Zool.)*, vi, p. 126 (1862).
Dasychira chalana costiplaga Wlkr., Seitz, *Grossschm. d. Erde*, x, p. 297, pl. 38b (1915).

Type, ♂, Sarawak, in Oxford Museum.

1 ♂, Taiping; 1 ♂, 3,500 ft., Bukit Kutu, Selangor; 2 ♂♂, 3,200–3,300 ft., Kedah Peak; in F.M.S. Museum. 2 ♀♀, Layang Layang, Johore; coll. Agric. Dept., Kuala Lumpur.

A comparison of these Malayan specimens with a series from Sarawak shows no distinction in facies, and this has been confirmed by a comparison of the ♂ genitalia of two Sarawak and two Malayan specimens.

Dasychira costalis Wlkr. (1855), type ♀ (not ♂ as stated in original description), Java, in British Museum, approaches rather closely to *D. costiplaga* Wlkr. in markings and general appearance. The genitalia, however, show striking distinctions in form of valve and uncus, and leave no doubt that the two are distinct.

Of *D. chalana* Moore (1859), type ♀, Java, in British Museum, I have seen only Moore's original pair of specimens. Both markings and ♂ genitalia seem to show specific distinction from *D. costalis* Wlkr., but further specimens might perhaps show the differences to be individual. *D. chalana* is quite distinct from *D. costiplaga*.

105. **Dasychira mendosa** Hübn.

Olene mendosa Hübn., *Zütr. Ex. Schmett.* ii, p. 19, figs. 293 and 294 (1823).
Dasychira mendosa Hübn., Seitz, *Grossschm. d. Erde*, x, p. 292, pl. 38a (1915).

Type, ♀, Java.

1 ♀, Kuala Lumpur, larva on *Aleurites montana*; in British Museum. 3 ♂♂, Penang; in Tring Museum. 1 ♀, Singapore; in Zoological Museum, Berlin.

106. **Dasychira osseata** Wlkr.

Orgyia osseata Wlkr., *Journ. Linn. Soc. Lond.* (*Zool.*), vi, p. 125 (1862).
Dasychira osseata Wlkr., Seitz, *Grossschm. d. Erde*, x, p. 301 (1915).

Type, ♂, Sarawak, in Oxford Museum.

34 ♂♂, Singapore ; in British Museum. 2 ♂♂, Penang ; 1 ♂, Padang Rengas ; in Tring Museum. 2 ♂♂, Singapore ; 6 ♂♂, Kuala Lumpur ; 2 ♂♂, 3,400–3,450 ft., Bukit Kutu, Selangor ; 1 ♂, 3,000–3,500 ft., Kedah Peak ; 1 ♂, near Jitra, Kedah ; 1 ♂, 1,800 ft., Batang Padang, Perak ; 1 ♂, Taiping ; in F.M.S. Museum. 1 ♂, 15.i.1927, larva feeding on *Annona muricata*, and 1 ♀, 13.ii.1925, larva feeding on Guava, Kuala Lumpur ; in coll. Agric. Dept., Kuala Lumpur.

The ♂ of this species is very variable. Some specimens are only with difficulty separated from the next species (*q.v.*), and its relationships have entailed the making of many genitalia slides and much careful comparison.

Dasychira albiplaga Swinh. (*Seitz*, x, pl. 38e) is represented in the British Museum by the type ♂ and ♀ (Java) and a second ♀. The ♂ genitalia show that this insect has at least subspecific distinction from *D. osseata*, while the expanse of the ♂ *D. albiplaga* is slightly greater and the pattern on the forewing not truly duplicated in any specimen of the above series. The ♀♀ named by Swinhoe as *D. albiplaga* resemble each other, and are so like the ♂ in pattern that he has used almost the same description for both sexes. The ♀ of *D. osseata*, on the other hand, is a very different insect from the ♂. I have discussed *D. albiplaga* for the reason that van Eecke's figures of that species, in *Zool. Med. Leiden*, xi, pl. vii, figs. 7a to 7e, appear to me in every respect to represent *D. osseata*, and not *D. albiplaga*, which he has evidently misidentified.

D. osseata resembles in both sexes *D. mendosa* Hbn., but the latter can be separated by its much larger size.

107. **Dasychira araea** sp. nov. (plate II, fig. 43).

♂. Palpus, head, thorax and abdomen bistre mixed sparsely with snuff-brown and pinkish buff, and with fuscous dorsal tufts on basal segments of abdomen. Antennal shaft tawny-olive, pectinations fuscous. Pectus and venter pinkish buff. Legs pinkish buff to clay-colour, with fuscous patches on the outersides. Forewing snuff-brown ; an irregular bistre subbasal fascia ; a patch of bistre below the cell between subbasal and antemedial, not visible in all specimens ; an irregular bistre antemedial fascia crossing the wing to the inner margin at one-half ; a light patch between antemedial and postmedial, from vein *Cu*2 to the inner margin, not visible in all specimens ; some indistinct bistre spots round the discocellulars ; a crenulate bistre postmedial fascia, bowed round the discocellulars to vein *Cu*2, thence oblique outwardly to the inner margin ; some interneural bistre streaks between postmedial and termen, that below vein *Cu*2 being the most conspicuous and having a spot of white at its distal end ; fringe snuff-brown, bistre interneurally. Hindwing and fringe snuff-brown. *Underside* of both wings pinkish buff, with an indistinct darker postmedial fascia ; fringes pinkish buff, mixed interneurally on the forewing with bistre.

♀. Much lighter than the ♂, with a very narrow forewing ; subbasal, antemedial and postmedial fascias are as in the ♂, and the patch of bistre below the

cell between subbasal and antemedial is conspicuous ; there is a further patch of bistre below the costa just beyond the postmedial.

Expanse : ♂♂ 26–29 mm., ♀ 43 mm.

1 ♂ (holotype) 5.v.1931, 1 ♀ (allotype) 2.xi.1921, Kuala Lumpur ; and the following paratypes : 4 ♂♂ January 1931, 1 ♂ April 1931, 1 ♂ May 1931, 1 ♂ August 1931, 1 ♂ October 1921, all Kuala Lumpur ; 2 ♂♂, 3,500 ft., Kedah Peak, March 1928 ; 1 ♂, 3,500 ft., Bukit Kutu, Selangor, 15.iv.1920 ; 1 ♂, near Jitra, Kedah, 11.iv.1928 ; all taken by H. M. Pendlebury ; F.M.S. Museum. Types and one paratype presented to British Museum.

In the ♂ sex slightly larger than *D. osseata* Wlkr., and with a darker hindwing. The subsidiary arm of the valve is longer than the main arm, whereas in *D. osseata* it is considerably shorter. In the latter species there is a short spine at the middle of the subsidiary arm of the valve, which is not present in *D. araea*.

108. **Dasychira alampeta** sp. nov. (plate I, fig. 20).

♂. Palpus snuff-brown. Antennal shaft bistre, pectinations Saccardo's umber. Head and thorax bistre mixed with snuff-brown. Abdomen snuff-brown. Pectus, venter and legs tawny-olive, the foreleg darker. Forewing snuff-brown, irrorated in an irregular manner with bistre ; a patch of bistre in the subbasal area ; an antemedial fascia formed of two poorly defined and irregular lines of bistre ; a fairly distinct bistre postmedial fascia, somewhat broken up into spots, except towards the costa, where it is broader and more distinct ; fringe bistre, mixed with snuff-brown at the vein-ends. Hindwing and fringe snuff-brown. *Underside* of both wings somewhat lighter than upperside of hindwing ; forewing with proximal three-fourths of costa narrowly marked with bistre, and a patch of the same colour postmedially ; fringe of both wings mixed interneurally with bistre.

Expanse : ♂♂ 21–29 mm.

1 ♂ (holotype) and 1 ♂ (paratype), near Jitra, Kedah, 8. and 10.iv.1928 ; 1 ♂ (paratype), 3,500 ft., Bukit Kutu, Selangor, 13.iv.1926 ; all taken by H. M. Pendlebury ; 2 ♂♂ (paratypes), 3,400 ft., Bukit Kutu, August 1915 ; 2 ♂♂ without data ; F.M.S. Museum. Holotype presented to British Museum.

109. **Dasychira pennatula** Fabr.

Bombyx pennatula Fabr., *Ent. Syst.* iii, 1, p. 465 (1793).
Dasychira securis Hübn., Seitz, *Grossschm. d. Erde*, ii, p. 115, pl. 22c (1910).

Type, ♂, India, in the Museum of the Copenhagen University. (See Aurivillius on Fabrician types, *Entom. Tirskrift*, p. 157, No. 114, 1897.)

2 ♂♂, Kuala Ketil, Kedah ; in British Museum.

110. **Dasychira horsfieldii** Saund.

Arctia horsfieldii Saund., *Trans. Ent. Soc. Lond.* p. 162 (1851).
Dasychira horsfieldii Saund., Seitz, *Grossschm. d. Erde*, x, p. 292, pl. 38 (1915).

Type, ♂, Java, in British Museum.

9 ♂♂, 2 ♀♀, Singapore ; 1 ♂, 2,000–3,500 ft., Perak ; 1 ♀, Malacca ; 1 ♀, Penang ; in British Museum. 1 ♀, Kuala Kangsar, Perak ; in Oxford Museum. 2 ♂♂, 1 ♀, Bukit Kutu, Selangor ; 1 ♂, Penang ; in Tring Museum. 2 ♂♂, 3,500 ft., Bukit Kutu, Selangor ; 1 ♂, 4,200 ft., Fraser's Hill, Pahang ; 1 ♂,

4,800 ft., Tanah Rata, Cameron's Highlands ; 2 ♀♀, Taiping, Perak ; in F.M.S. Museum.

The genitalia of ♂ specimens from Java, Sumatra, Malaya, Sarawak and Ceylon have been compared, and reveal no subspecific difference. The teeth on the clasping process of the valve vary somewhat in size and spacing, but this appears to be individual rather than racial.

111. **Dasychira vaneeckei** sp. nov. (plate II, fig. 32).

♂. Palpus ochraceous-buff, on the outer side fuscous. Antennal shaft whitish, pectinations tawny-olive. Head and thorax yellowish olive. Abdomen pale yellow-orange, with yellowish-olive dorsal tufts on the basal segments. Pectus light buff, in front orange-buff. Foreleg yellowish olive, on the inner side of femur and tibia orange-buff ; middleleg yellowish olive mixed with light buff ; hindleg light buff, with fuscous patches on the outside of tibia and tarsus. Venter light buff. Forewing yellowish olive, grading in distal half of wing to light brownish olive ; a faint dark line round the discocellulars, the space filled in with yellowish olive ; faint dark subterminal and preterminal fasciae, crenate, points on the veins, concavities terminad ; fringe light brownish olive. Hindwing light orange-yellow ; a fuscous patch on the discocellulars ; a broad fuscous subterminal fascia, broken between veins *M*3 and *Cu*2, and finishing at the anal angle ; fringe light buff. *Underside* of both wings light buff ; a fuscous patch on both discocellulars ; the subbasal fascia on upperside of hindwing reproduced below in a reduced form ; fringes light buff.

♀. Resembles the ♂.

Expanse : ♂♂ 42–44 mm., ♀ 68 mm.

1 ♂ (holotype) 18.iii.1931, and 2 ♂♂ (paratypes) 19.iii.1931 and 20.iv.1926, Bukit Kutu, Selangor, at light, 3,500 ft. ; 1 ♀ (allotype), Kuala Lumpur, 7.ii.1922 ; all taken by H. M. Pendlebury ; F.M.S. Museum. Types presented to British Museum.

In the British Museum is a series of 5 ♂♂ from Korintji Peak, Sumatra, apparently of this species.

Allied to *Dasychira virescens* Moore (1879), from which it may be distinguished by the absence of the dark preterminal fascia on the hindwing.

112. **Dasychira amydra** Collnt.

Dasychira amydra Collnt., *Nov. Zool.* xxxvii, 2, p. 175 (1932).

Type, ♂, Palawan, in Tring Museum.

1 ♂, Selangor ; in British Museum. 1 ♂, Kuala Lumpur ; 1 ♂, 3,500 ft., Bukit Kutu, Selangor ; 1 ♂, 4,800 ft., Tanah Rata, Cameron's Highlands, Pahang ; in F.M.S. Museum.

Agrees well in facies with Philippine specimens. I have not seen a ♀ from Malaya.

113. **Dasychira inclusa** Wlkr.

Dasychira inclusa Wlkr., *List Lep. Ins. B.M.* vii, p. 1737 (1856) ; Seitz, *Grossschm. d. Erde*, x, p. 293, pl. 38a (1915).

Dasychira asvata Moore, *Cat. Lep. Mus. E.I.C.* ii, p. 340 (1859) ; Seitz, *l.c.*, p. 296, pl. 38b (1915).

Type (*inclusa*), ♂, Java, in British Museum.

Type (*asvata*), ♂, Java, in British Museum.

1 ♂, Singapore ; 1 ♂, Dindings ; in British Museum. 1 ♂, Kuala Lumpur ;

1 ♂, Penang ; in Tring Museum. 1 ♂, 22.i.1931, Saba Bernam, larva feeding on *Elasis guineensis* ; 1 ♂, 2 ♀♀, 12.i.1930, Layang Layang, Johore, larva feeding on *Derris* sp. ; in coll. Agric. Dept., Kuala Lumpur. 2 ♂♂, Singapore ; 1 ♂, Kuala Pilah, Negri Sembilan ; 3 ♂♂, 3,400–3,500 ft., Bukit Kutu, Selangor ; 2 ♂♂, Kuala Lumpur ; 1 ♂, Kuala Krau ; 1 ♂, Kedah Peak ; in F.M.S. Museum.

There is considerable variation in the appearance of the insects in this series, but a comparison of the genitalia of six Malayan ♂♂, and of a Javanese and a Malayan ♀, does not show grounds for splitting up. Preparations have also been made from the types of *D. inclusa* and *D. asvata*, which show that the latter must sink. The white network on the forewing of the type of *D. asvata*, well shown in the illustration in Seitz, is an individual variation found in differing degrees in other specimens.

114. **Dasychira cerigoides** Wlkr.

Janassa cerigoides Wlkr., *Journ. Linn. Soc. Lond.* (*Zool.*), vi, p. 135 (1862) (♂).
Dasychira cerigoides Wlkr., Seitz, *Grossschm. d. Erde*, x, p. 296 (1915).
Lymantria galinara Swinh., *Trans. Ent. Soc. Lond.* p. 490 (1903) (♀, *nec* ♂).

Type, ♂, Sarawak, in Oxford Museum.

3 ♀♀, Singapore ; in British Museum. 1 ♂, Singapore ; in Tring Museum. 2 ♀♀, Singapore ; in Zoological Museum, Berlin. 2 ♂♂, 2 ♀♀, Singapore ; in F.M.S. Museum.

The ♀ of this species, hitherto unidentified, was found to have been described in error as the allotype of *Lymantria galinara* Swinh.

A comparison of the ♂ genitalia of two Malayan, two Sarawak and one Sumatran specimen shows no character on which they can be separated, although there is a certain amount of individual variation.

In Seitz, x, p. 299, Singapore is mentioned as a locality for *Dasychira grossa* Pag., but I think it probable that this record actually relates to *D. cerigoides*.

115. **Dasychira diplozona** sp. nov. (plate II, fig. 28).

♂. Palpus upturned, bistre, distally pinkish buff. Antennal shaft white mixed distally with ochraceous-tawny ; pectinations ochraceous-tawny. Head and thorax whitish mixed sparsely with fuscous, giving an effect of pale smoke-grey. Abdomen Prout's brown, distal segments mixed with whitish ; anal tuft pale smoke-grey. Pectus and legs pale smoke-grey, femora and tibiae fringed with long bushy hair-scales. Venter pinkish buff. Forewing whitish ; an antemedial fascia composed of a double line of Prout's brown, the inner line almost straight across the wing, the outer line irregular, the Prout's brown replaced by fuscous above the lower margin of the cell, where the outer line runs oblique outwardly to the costa and the interspace is filled in with cinnamon-brown ; a faint Prout's brown patch on the costa just before the discocellulars ; a Prout's brown postmedial fascia, curved outwardly from the costa to vein *M*1, thence crenate inwardly to vein *Cu*2, thence outwardly oblique to the inner margin ; a Prout's brown streak on the costa just beyond the postmedial fascia ; a Prout's brown subterminal fascia, roughly equidistant from the termen for its whole length, but irregular between veins *M*2 to *Cu*1 ; fringe whitish. Hindwing Prout's brown, inner marginal area slightly darker ; fringe whitish mixed sparsely with Prout's brown. *Underside* of both wings whitish, mixed in an irregular manner with Prout's brown, the latter almost absent towards the termen, but

with the veins marked with Prout's brown and with a terminal line of the same colour ; costa of forewing and both fringes whitish.

Expanse : ♂♂ 44–49 mm.

1 ♂ (holotype) 18.iii.1931, and 1 ♂ (paratype) 12.iv.1926, 3,500 ft., Bukit Kutu, Selangor ; 1 ♂ (paratype), 23.x.1921, Kuala Lumpur ; 1 ♂ (paratype), 15.iii.1928, 3,300 ft., Kedah Peak ; all taken at light by H. M. Pendlebury ; F.M.S. Museum. Holotype presented to British Museum.

Allied to *Dasychira postfusca* Swinh. (1895), but the forewing lighter and the antemedial fascia doubled below the cell, whereas in *D. postfusca* it is represented only by the outer line.

116. **Dasychira strigata** Moore.

Dasychira strigata Moore, *Lep. Coll. Atk.* p. 58 (1879) ; Seitz, *Grossschm. d. Erde*, x, p. 295 (1915).

Type, ♀, Masuri, Garhwal, in British Museum.

1 ♂, Kuala Lumpur ; in F.M.S. Museum, Kuala Lumpur (ex coll. Agric. Dept.).

This specimen does not differ in facies from Indian examples, but is very large in expanse (63 mm.).

It is surprising that only a single example of such a conspicuous species should occur in the present collection. The data on the specimen are as given above, but the occurrence should perhaps be treated with reserve until confirmed by other captures.

117. **Dasychira angulata** Hamps.

Dasychira angulata Hamps., *Trans. Ent. Soc. Lond.* p. 292 (1895) ; Seitz, *Grossschm. d. Erde*, x, p. 295, pl. 38e (1915).

Type, ♂, Sikkim, in British Museum.

1 ♂, Singapore ; in British Museum. 1 ♂, Penang ; in Tring Museum. 1 ♂, Kuala Pilah ; 1 ♀, 3,500 ft., Kuala Pilah, Selangor ; 1 ♀, 6,000 ft., Gunong Benom, Pahang ; in F.M.S. Museum.

The British Museum collection contains only one ♂ and one ♀ from India. Van Eecke has included Sumatra, Java and Borneo in the range of this species, and Malayan specimens appear to conform.

118. **Dasychira zelotica** sp. nov. (plate II, fig. 49).

♂. Palpus porrect, ochraceous-buff, mixed on the outerside with fuscous. Antenna large, the shaft light buff, pectinations ochraceous-tawny. Head and thorax light buff. Abdomen snuff-brown. Pectus, venter and legs light buff ; the legs on outerside spotted with fuscous. Forewing whitish, irrorated with sayal brown and snuff-brown ; an indistinct wavy antemedial fascia, indicated by an increase in the irroration ; discocellulars faintly outlined with sayal brown ; faint bistre postmedial and preterminal fascias, crenate, points on the veins, concavities terminad ; fringe whitish, marked interneurally with bistre. Hindwing snuff-brown ; fringe somewhat lighter, marked interneurally with bistre. *Underside* of both wings light buff mixed with snuff-brown ; a patch of bistre on the discocellulars of both wings ; fringes light buff marked interneurally with bistre.

♀. Fasciae on forewing less distinct and hindwing lighter than in the ♂. The dark interneural markings on the fringes of both wings more plainly marked than in the ♂.

Expanse : ♂ 55 mm., ♀ 69 mm.

1 ♂ (holotype), Kuala Lumpur, ex coll. Agric. Dept. ; 1 ♀ (allotype), Bukit Kutu, Selangor, at light, 3,500 ft., 14.iv.1926 (H. M. Pendlebury) ; F.M.S. Museum. Types presented to British Museum.

Resembles a *Dasychiroides* in appearance but has the venation of a *Dasychira*. The termina in both sexes are evenly curved, not angled as in *D. angulata* Hamps.

119. **Dasychira tristis** Heyl.

Dasychira tristis Heyl., *Ann. Soc. Ent. Belg.* 36, p. 12 (1892) ; Seitz, *Grossschm. d. Erde*, x, p. 296 (1915).

Dasychira anaha Swinh., *A.M.N.H.* (7), xviii, p. 406 (1906) ; Seitz, *l.c.*, x, p. 296, pl. 38e (1915).

Type, ♀, Padang, Sumatra, in Leiden Museum.

Type (*anaha*), ♂, Padang, Sumatra, in British Museum.

1 ♂, Kuala Lumpur, 12.xi.1928 (G. H. Corbett) ; in coll. Agric. Dept., Kuala Lumpur.

120. **Dasychira viridis** Druce.

Dasychira viridis Druce, *A.M.N.H.* (7), iii, p. 470 (1899) ; Seitz, *Grossschm. d. Erde*, x, p. 295 (1915).

Type, ♂, 2,000–3,500 ft., Perak, in British Museum.

1 ♂, 2,260 ft., Penang ; in British Museum. 3 ♂♂, 3,000 ft., Bukit Kutu, Selangor ; 1 ♂, 2,000–3,000 ft., Gunong Ijau ; 4 ♂♂, Penang ; in Tring Museum. 1 ♂, Ulu Langat, Selangor ; 12 ♂♂, 3,400–3,500 ft., Bukit Kutu ; 1 ♀, Gombok Valley, Kuala Lumpur ; 1 ♂, 1 ♀, 1,800 ft., Batang Padang, Perak ; 1 ♂, Taiping ; 1 ♀, 4,200 ft., Fraser's Hill, Pahang ; in F.M.S. Museum.

I have little doubt that this species will sink to *Dasychira baruna* Moore (1859), the type ♀ of which, from Java, is in the British Museum collection. I have been unable to obtain a Javanese ♂ for comparison, and failing this have been obliged to leave the question open.

121. **Dasychira callima** sp. nov. (plate II, fig. 39).

♂. Palpus tawny-olive, orange-buff beneath at the base, fuscous on the outerside and above. Antennal shaft deep lichen-green, pectinations buckthorn-brown. Head tawny-olive, vertex yellowish olive. Thorax yellowish olive, mixed centrally with warm sepia ; tegula distally warm sepia. Abdomen above and beneath warm buff, with dorsal tufts on the basal segments of yellowish olive mixed with fuscous-black ; anal tuft warm buff. Pectus warm buff, orange-buff in front. Legs tawny-olive ; foreleg on the outerside yellowish olive ; tarsus of hindleg whitish. Forewing yellowish olive, grading in distal half of wing to buffy olive ; some indistinct light markings along the costa ; a fuscous line round the discocellulars ; indistinct fuscous postmedial, subterminal and preterminal fasciae, crenate, points on the veins, concavities terminad ; a series of terminal interneural fuscous spots ; fringe tawny-olive, interneurally fuscous. Hindwing warm sepia ; fringe warm buff. *Underside* of forewing warm sepia ; costal area narrowly, inner marginal and terminal areas broadly, light buff ; fringe as on upperside. *Underside* of hindwing warm sepia ; fringe warm buff, this colour also narrowly invading the terminal area.

Expanse : 38 mm.

1 ♂ (holotype), Cameron's Highlands, Pahang, 20.x.1928, larva feeding on *Cinchona succirubra* (G. H. Corbett). Presented to the British Museum by the Imperial Institute of Entomology.

Somewhat resembles *Dasychira chloroptera* Hamps. (1893), but smaller, and the broad terminal band of warm buff on the hindwing replaced by a fringe only of this colour.

122. **Malachitis preangerensis** Heyl.

Dasychira (*Mardara*) *preangerensis* Heyl., *C.R. Soc. Ent. Belg.* 36, i, p. 13 (1892); Seitz, *Grossschm. d. Erde*, x, p. 296 (1915); van Eecke, *Zool. Med. Leiden*, xi, p. 98, pl. ix, figs. 17 and 17a (1928).

Type, ♀, Java, in Leiden Museum.

1 ♂, at light, 4,800 ft., 20.v.1931, Tana Rata, Cameron's Highlands, Pahang (H. M. Pendlebury); in F.M.S. Museum. Expanse: 39 mm.

The type of *Malachitis melanochlora* Hamps. (1895), which is in the British Museum, is a small rubbed ♂ from Bhutan. In the British Museum is a further ♂ from the Khasis, which agrees well with a ♂ from Java and the Malayan specimen recorded above. I have little doubt that *M. melanochlora* is a synonym of *M. preangerensis*, but the material is insufficient for a definite pronouncement.

123. **Mardara ruficeps** Hamps. (plate I, fig. 19).

Mardara ruficeps Hamps., *Fauna of Brit. India*, iv, p. 489 (1896); Seitz, *Grossschm. d. Erde*, x, p. 300 (1915).

Type, ♀, Bhutan, in British Museum.

1 ♀, Perak (Hartert); in Zoological Museum, Berlin.

The type of this species is considerably rubbed, but the Malayan specimen appears to match it very well. I have seen no other examples.

When a longer series is available, a transfer to another genus will be required. In the forewing, vein *R*1 rises beyond the areole from the stalk of *R*2–*R*5; and in the hindwing, *M*3–*Cu*1 and *Rs*–*M*1 are each on a long stalk.

The illustration shows the Perak specimen.

124. **Pida decolorata** Wlkr.

Cyclidia (?) *decolorata* Wlkr., *Char. Undescr. Lep. Het.* p. 96 (1869).
Pida decolorata Wlkr., Seitz, *Grossschm. d. Erde*, x, p. 315 (1915).

Type, ♂, near Benares, in Devon and Exeter Museum.

1 ♀, at light, 4,000 ft., 6.vii.1931, Fraser's Hill, Pahang (H. M. Pendlebury); in F.M.S. Museum.

This single Malayan ♀ is within the range of variation of Indian specimens. The postmedial fascia on the forewing is scarcely visible.

125. **Pida strigipennis limbata** subsp. nov.

♂. Easily distinguished from the dark form of the N. Indian ♂ by its larger size and broad border of light buff (width about 3 mm.) in the terminal area of the hindwing. The *underside* of the forewing is entirely light buff.

♀. Perhaps not distinguishable by colour or marking from the variable N. Indian ♀, but in size the present allotype is considerably larger than any Indian ♀ in the British Museum series.

Expanse : ♂ (holotype) 51 mm. (3 N. Indian ♂♂ of dark form, 37–41 mm.), ♀ (allotype) 67 mm., ♀ (paratype ; deformed ?) 50 mm.

1 ♂ (holotype), Jor Camp, Batang Padang, Perak, 1,800 ft., 8.iii.1924 ; 1 ♀ (paratype), Kuala Lumpur, 10.iv.1931, both at light (H. M. Pendlebury) ; F.M.S. Museum. 1 ♀ (allotype), Singapore (H. N. Ridley) ; British Museum. Holotype presented to British Museum.

Apparently this is the Malayan race of the N. Indian species.

The Indian ♂ has two forms, both of which are in the British Museum from Assam. The dark form was described by Leech in *Trans. Ent. Soc. Lond.*, p. 128 (1899), while the light form, strongly resembling the ♀, seems to have been noted first by Hampson in *Faun. Br. India*, i, p. 457 (1893). These two forms do not appear to differ in the genitalia.

126. **Orgyia turbata** Butl.

Orgyia turbata Butl., *Trans. Linn. Soc. Lond.* (2), i, p. 560 (1879) ; Seitz, *Grossschm. d. Erde*, x, p. 300, pl. 42h (1915).

Type, ♂, Malacca, in British Museum.

6 ♂♂, Penang ; 3 ♂♂, Province Wellesley ; 1 ♂, Perak ; 1 ♂, Malacca ; 3 ♂♂, Sungei Way ; 1 ♂, Kuala Lumpur ; 1 ♂, Serdang ; in British Museum. 10 ♂♂, Penang ; 2 ♂♂, Perak ; 1 ♂, Kuala Lumpur ; 2 ♂♂, Gunong Tahan ; in Tring Museum. 2 ♂♂, Malacca ; in Zoological Museum, Berlin. 10 ♂♂, Kuala Lumpur ; 1 ♂, Kuala Tahan ; 1 ♂, Jitra, Kedah ; in F.M.S. Museum.

The ♀ has aborted wings.

For the life-history and a discussion of the insect as a possible pest of rubber, see Corbett and Dover in *Malayan Agric. Journal*, xv, p. 240 (1927).

127. **Orgyia postica** Wlkr.

Lacida postica Wlkr., *List Lep. Ins. B.M.* iv, p. 803 (1855).
Orgyia postica Wlkr., Seitz, *Grossschm. d. Erde*, x, p. 301, pl. 42i (1915).

Type, ♂, East Indies, in British Museum.

1 ♂, Singapore ; 1 ♂, Negri Sembilan ; in British Museum. 1 ♂, Penang ; in Tring Museum. 2 ♂♂, Kuala Lumpur ; 2 ♂♂, 3,450–3,500 ft., Bukit Kutu, Selangor ; 4 ♂♂, 3,300 ft., Kedah Peak ; 1 ♂, Langkawi Islands ; in F.M.S. Museum.

128. **Orgyia shelfordi** sp. nov. (plate II, fig. 40).

♂. Palpus porrect, long and heavily haired, mummy-brown. Antenna mummy-brown, the pectinations widely spaced. Head, thorax, and abdomen above and beneath, mummy-brown. Pectus and legs pinkish buff. Upperside of both wings mummy-brown, the termina slightly darker ; a prominent dark spot on the discocellulars of the forewing ; fringes mummy-brown. *Underside* of both wings, and fringes, mummy-brown, the dark spot on the discocellulars faintly visible.

Expanse : ♂♂ 14½ mm.

1 ♂ (holotype) and 1 ♂ (paratype), Larut Hills, Perak, 4,000–4,500 ft., February–March 1905 (R. Shelford) ; in Oxford Museum. Paratype presented to British Museum.

Resembles *Orgyia tisdala* Swinh. (1903), but smaller and darker, and with the apex of the forewing somewhat less rounded.

129. **Pantana bicolor** Wlkr.

Pantana bicolor Wlkr., *List Lep. Ins. B.M.* iv, p. 820 (1855).
Pantana semilucida Swinh., *Trans. Ent. Soc. Lond.* p. 439 (1903); Seitz, *Grossschm. d. Erde*, x, p. 315 (1915).
Etobema lineosa Wlkr., *List Lep. Ins. B.M.* xxxii, p. 389 (1865).
Pantana lineosa Wlkr., Seitz, *l.c.*, p. 315 (1915).

Type (*bicolor*), ♂, Java, in British Museum. In Walker's description this insect is said to be without locality, but a label on the specimen bears the museum number 40.4.3.146 (*i.e.* 3rd April, 1840, specimen 146), and the museum register shows that it came from Java.

Type (*lineosa*), ♂, Singapore, in Oxford Museum.

2 ♂♂, Penang; 1 ♂, Province Wellesley; 1 ♂, 1 ♀, Perak; 2 ♀♀, Malacca; 1 ♂, Johore; 1 ♂, 2 ♀♀, Singapore; in British Museum. 1 ♂, Penang; 1 ♀, Taiping; 1 ♂, 1 ♀. 3,000 ft., Bukit Kutu, Selangor; in Tring Museum. 1 ♂, 2 ♀♀, Malacca; in Zoological Museum, Berlin. 6 ♂♂, Penang; 5 ♂♂, 2,000–3,500 ft., Bukit Kutu; 1 ♂, Gunong Tampin; 1 ♀, Gunong Pulai, Johore; in F.M.S. Museum.

The ♂♂ of this species from Penang have a white or nearly white hindwing, while in those from Singapore and the south of the peninsula the hindwing is dark. Intermediates occur in Selangor. The genitalia do not appear to show any distinction, and I have not separated the two forms.

Swinhoe states (*Trans. Ent. Soc. Lond.* p. 439, 1903) that *Pantana bicolor* Wlkr., *List Lep. Ins. B.M.* iv, p. 820 (1855), is preoccupied by *Pantana* (*Orgyia*) *bicolor* Wlkr., *List Lep. Ins. B.M.* iv, p. 787 (1855). The latter (type in Oxford Museum) is, however, a *Euproctis* with an expanse of only 10 lines, an East Indian insect which is apparently rare, as it cannot be matched in the British Museum collection. Swinhoe's nom. nov. of *P. semilucida* is therefore not required, and must sink.

The representation in Seitz, x, pl. 42a, 7th figure, which is named *bicolor* and altered in the errata on p. 314 to *lineosa*, and yet again on the last line of p. 314 to *semilucida*, is in fact none of these three, but apparently *Pantana delineata* Wlkr. (1855). The representation on Seitz, ii, pl. 20b, 5th figure, correctly represents *Pantana bicolor* Wlkr. (1855), but the description with which the figure is associated, on p. 125, is of *P. delineata* Wlkr.!

130. **Pantana baswana** Moore.

Pantana baswana Moore, *Cat. Lep. Mus. E.I.C.* ii, p. 336, pl. ixa, fig. 1 (1859); Seitz, *Grossschm. d. Erde*, x, p. 315, pl. 41g (1915).

Type, ♂, Java, in British Museum.

1 ♀, at light, 2,000 ft., 21.viii.1922, Jor Camp, Perak (E. Seimund); in F.M.S. Museum.

In this specimen the dark spotting and irroration on the upperside of forewing is less heavy than in Javanese ♀♀ which I have seen. Although Javanese ♂♂ greatly outnumber ♀♀ in collections, the ♂ does not seem to be known from Malaya.

131. **Pantana visum** Hübn.

Liparis visum Hübn., *Zuträge Ex. Schmett.* iii, p. 33, figs. 543 and 544 (1825).
Pantana visum Hübn., Seitz, *Grossschm. d. Erde*, ii, p. 125 (1911).

2 ♂♂, Perak; in British Museum. 1 ♂, flying at 10 a.m., 18.iv.1920, Kuala Lumpur (W. A. Lamborn); in Oxford Museum. 1 ♂, 28.vii.1922, Kuala Lumpur (H. M. Pendlebury); in F.M.S. Museum.

I have seen no ♀♀ of this species, and they are probably wingless.

132. **Sitvia denudata** Wlkr.

Sitvia denudata Wlkr., *List Lep. Ins. B.M.* xxxii, p. 388 (1865); Seitz, *Grossschm. d. Erde*, x, p. 319, pl. 39e (1915).

Type, ♂, Malacca, in Oxford Museum.

1 ♂, Perak; 1 ♂, Malacca; 1 ♀, Penang; 1 ♀, Singapore; in British Museum. 1 ♂, Kuala Lumpur; in Oxford Museum. 5 ♀♀, Penang; 1 ♀, Gunong Ijau; in Tring Museum. 3 ♂♂, Kuala Lumpur; 1 ♀, 3,450 ft., Bukit Kutu, Selangor; 1 ♂, 1,000 ft., Kedah Peak; 1 ♀, Langkawi Islands; in F.M.S. Museum.

133. **Lymantria obsoleta** Wlkr.

Lymantria obsoleta Wlkr., *List Lep. Ins. B.M.* iv, p. 880 (1855); Seitz, *Grossschm. d. Erde*, ii, p. 130 (1910).

Type, ♂, N. India, in British Museum.

1 ♀, at light, 3,500 ft., 16.iv.1926, Bukit Kutu, Selangor (H. M. Pendlebury); in F.M.S. Museum.

The Malayan specimen appears to conform to this variable species, but in the absence of ♂♂ its exact position is uncertain. It has no pink on the abdomen. The ovipositor is extruded, as in all other ♀♀ of *L. obsoleta* that I have seen.

134. **Lymantria atemeles** sp. nov. (plate II, figs. 36, 41).

♂. Palpus light buff, the first segment, and second segment on the outerside, Prout's brown. Antenna fuscous. Head light buff, the eye fringed on the innerside with Prout's brown. Thorax light buff; a line of capucine-yellow at the junction of head and thorax; patagium Prout's brown laterally and a narrow band of the same colour dorsally; a small patch of capucine-yellow dorsally just below the patagium, not present in some of the paratypes. Abdomen above and beneath light orange-yellow, with a series of fuscous spots laterally and a further series dorsally, the latter developing on the basal segments into tufts. Pectus Prout's brown mixed with light orange-yellow. Legs Prout's brown, banded with light buff, and fringed with light buff hair-scales. Forewing snuff-brown, with numerous whitish markings, of which the following are the most prominent: a large patch in the subbasal area, reaching from costa to inner margin, enclosing some snuff-brown spots; a patch occupying the end of the cell, enclosing a snuff-brown spot and extending upwards to the costa; a crenate postmedial fascia, concavities terminad, ends on the veins; a crenate preterminal fascia, the lunules between *M*1 and *M*3, and also *Cu*1 and *Cu*2, larger than the remainder; fringe snuff-brown, the vein-ends whitish. Hindwing light orange-yellow; a snuff-

brown spot on the discocellulars, absent in some specimens ; costa and termen broadly bordered with snuff-brown, approximately 2½ mm. wide, narrowing at the anal angle ; within the border a whitish patch between veins *Cu*1 and *Cu*2, and further smaller patches nearer the costa ; between the end of the cell and the marginal band the light orange-yellow is to some extent replaced by whitish ; fringe whitish, at the apex snuff-brown. *Underside* of both wings, and fringes, as on upperside, but on the hindwing the snuff-brown spot on the discocellulars is increased in size, while the light orange-yellow is replaced by whitish except in the cell and inner marginal area.

♀. Resembles the ♂ generally in pattern and appearance, but in the forewing the large subbasal whitish patch does not enclose any spots, and the whitish post-medial fascia is broad and conspicuous. In the hindwing the light orange-yellow is entirely replaced by whitish excepting for a slight tinge basally on the inner margin, and there are no whitish markings enclosed in the marginal band.

Expanse : ♂♂ 39–48 mm., ♀♀ 59–71 mm.

1 ♂ (holotype) 16.iii.1898, 1 ♀ (allotype) 30.iii.1898, 2,260 ft., Penang (S. S. Flower) ; and the following paratypes : 1 ♀, Province Wellesley (H. N. Ridley) ; 1 ♂ and 1 ♀, 8.iii.1927, Taiping, feeding on *Mangifera indica* (G. H. Corbett) ; in British Museum. 15 ♂♂, 3 ♀♀, Penang (Curtis), taken in the months March–May and November–December ; Tring Museum. 1 ♂, Lankawi Islands, 29.iv.1928 (H. M. Pendlebury) ; 1 ♂, Batu Gajah, 19.iii.1919 ; 2 ♀♀, Taiping ; F.M.S. Museum.

This insect is perhaps nearest to *Lymantria marginata* Wlkr. (1855), described from a Sylhet ♀. The ♀♀ are distinct in details of marking, one of these details, holding good for eight N. Indian and eight Malayan specimens which I have examined, being the presence in the former of one or more white spots in the middle of the dark margin of the hindwing, these spots being entirely absent in the Malayan ♀♀. In this respect, Butler's figure of the ♀, in *Ill. Lep. Het.* v, pl. xc, fig. 13, is at fault, as the hindmargin is illustrated as spotless, the mistake being due to the damaged condition of the type.

The ♂ of *L. marginata* has a dark, almost black, hindwing, while in *L. atemeles* the hindwing is light orange-yellow, having a dark border spotted with whitish.

135. **Lymantria beatrix** Stoll.

Bombyx beatrix Stoll, *Suppl. Pap. Exot.* p. 173, pl. 40, fig. 2 (1790).
Lymantria beatrix Stoll, Seitz, *Grossschm. d. Erde*, x, p. 325 (1923).
Lymantria ganaha Swinh., *Trans. Ent. Soc. Lond.* p. 487 (1903) ; van Eecke, *Zool. Med. Leiden*, xi, p. 101, pl. vii, fig. 11 (1928) ; Seitz, *l.c.*, p. 325 (1923).

Type (*beatrix*), ♀, Batavia.

Type (*ganaha*), ♀, Java, in British Museum.

1 ♂, 2 ♀♀, Singapore ; in British Museum. 3 ♀♀, Singapore ; 1 ♀, 3,500 ft., Bukit Kutu, Selangor ; in F.M.S. Museum.

Van Eecke (see reference above) states that he is inclined to unite *L. beatrix* Stoll and *L. ganaha* Swinh. There is a good series of Javanese ♀♀ in the British Museum, graduating from an insect agreeing well in appearance with Stoll's figure, to Swinhoe's type which has a dark forewing. Moreover, the genitalia of the lighter and darker form do not appear to differ. I have therefore had no hesitation in sinking *L. ganaha* Swinh.

136. **Lymantria capnodes** sp. nov. (plate II, fig. 48).

♂. Palpus orange-buff, tipped with Prout's brown. Antenna mummy-brown. Head, thorax and abdomen Prout's brown. Pectus and venter tilleul-buff to light buff. Legs tilleul-buff fringed with snuff-brown, the distal half of foretibia marked with orange-buff. Forewing Prout's brown with the following markings of Saccardo's umber : a basal patch and a bowed (concavity basad) subbasal fascia, a sinuous antemedial fascia, a patch in the distal third of the cell containing a Prout's brown spot, indistinct postmedial and subterminal fasciae and a series of preterminal interneural markings ; fringe Prout's brown. Hindwing and fringe bistre. *Underside* of both wings, and fringes, Prout's brown ; inner marginal area of forewing, below the cell and vein *Cu*2, ochraceous-buff.

Expanse : ♂♂ 38–41 mm.

1 ♂ (holotype) and 1 ♂ (paratype), Bukit Kutu, Selangor, 3,500 ft., 6. and 11.ix.1929 (H. M. Pendlebury) ; F.M.S. Museum. Holotype presented to British Museum.

This insect would appear at first sight to be a dark ♂ form of one of the species in the *L. beatrix* group, but I cannot establish that this is the case, and have found it necessary to name it as a new species.

137. **Lymantria pendleburyi** sp. nov. (plate II, fig. 47).

♂. Palpus orange-buff, with patches of orange-brown on the outer side of first and second segments. Antenna buckthorn-brown. Head and thorax whitish, the eye fringed with orange-buff, a line of the same colour at the junction of head and thorax, and a further line centrally across the thorax just below the patagium. Abdomen rather worn in all specimens of this series, but apparently orange-buff with a dark spot dorsally on each segment ; anal tuft whitish. Pectus orange-buff in front, light buff laterally. Femur of foreleg orange-buff, legs otherwise light buff, fringed with long whitish hair-scales. Forewing whitish, crossed by numerous broad bands of snuff-brown, which from the inner margin to a point midway between vein *Cu*2 and the anal vein are so broad as almost to exclude the ground-colour ; veins mainly whitish ; towards the end of the cell a round snuff-brown spot, and a dark >-shaped line on the discocellulars ; on the distal side of the postmedial fascia a broad area free of markings, increasing in size towards the tornus ; a series of preterminal interneural snuff-brown spots ; fringe whitish. Hindwing pale yellow-orange, darker in the inner marginal area ; traces of a dark striga on the discocellulars ; fringe whitish. *Underside* of both wings light buff ; costa of forewing and inner marginal area of hindwing more heavily scaled and darker ; fringes whitish.

Expanse : ♂♂ 46–56 mm.

1 ♂ (holotype) and 1 ♂ (paratype), at light, 3,300 ft., 14. and 18.iii.1928, Kedah Peak ; 1 ♂ (paratype), 3,500 ft., 6.ix.1929, Bukit Kutu, Selangor, all taken by H. M. Pendlebury ; 1 ♂ (paratype), 2,646 ft., November 1916, Gunong Kledang, Perak ; 1 ♂ (paratype), Taiping (E. Seimund) ; F.M.S. Museum. Holotype and one paratype presented to the British Museum.

Resembles in pattern of forewing *L. mathura* Moore (1865), but with clearly marked differences of detail. Can be easily distinguished by the light antenna, the lighter appearance of the whole insect, and the fact that apart from the faint discocellular striga the whole of the hindwing is unmarked.

138. **Lymantria ganara** Moore.

Lymantria ganara Moore, *Cat. Lep. Mus. E.I.C.* ii, p. 344 (1859); Seitz, *Grossschm. d. Erde*, x, p.325 (1917); van Eecke, *Zool. Med. Leiden*, xi, p. 101, pl. viii, figs. 2 and 2a (1928).

Type, ♂, Java, in British Museum.

2 ♂♂, Singapore; 2 ♂♂, 1 ♀, Malacca; 1 ♀, 2,000–3,500 ft., Perak; 1 ♀, Penang; in British Museum. 1 ♂, 2 ♀♀, Singapore; 1 ♀, Malacca; 1 ♂, Penang; in Tring Museum. 2 ♂♂, Taiping; 1 ♂, Trolak Forest Reserve, Sungkai; in F.M.S. Museum.

139. **Lymantria narindra** Moore.

Lymantria narindra Moore, *Cat. Lep. Mus. E.I.C.* ii, p. 342 (1859); Seitz, *Grossschm. d. Erde*, x, p. 326 (1917).

Type, ♀, Java, in British Museum.

1 ♂, Selangor; 1 ♂, Taiping Hills; in British Museum. 1 ♂, Bukit Kutu, Selangor; in F.M.S. Museum.

140. **Lymantria singapura** Swinh.

Lymantria singapura Swinh., *A.M.N.H.* (7), xvii, p. 547 (1906); Seitz, *Grossschm. d. Erde*, x, p. 323 (1917).

Type, ♂, Singapore, in British Museum.

1 ♂, Singapore; 1 ♂, Selangor; 1 ♀ (neallotype), Malacca (J. Waterstradt, 1904, ex Oberthür collection); 1 ♀, Penang; in British Museum. 5 ♂♂, Penang; 1 ♂, Gunong Tahan; 1 ♂, Pulau Tikus; 1 ♂, Bukit Kutu, Selangor; in Tring Museum. 1 ♂, Kuala Lumpur; 6 ♂♂, 1 ♀, 3,450–3,500 ft., Bukit Kutu, Selangor; 1 ♂, The Gap, Pahang; 2 ♂♂, 3,300 ft., Kedah Peak; in F.M.S. Museum.

Writing of this species in 1928, van Eecke (*Zool. Med. Leiden*, xi, p. 100) remarks that the ♀ appears to be unknown. On looking through the insects assembled for the present paper, the ♀ at once becomes apparent. It is not readily distinguishable in facies from *L. todara* Moore (1879), but a series would probably show a smaller average expanse, as the three specimens listed above measure only 63–68 mm.

141. **Lymantria brunneiplaga** Swinh.

Lymantria brunneiplaga Swinh., *Trans. Ent. Soc. Lond.* p. 491 (1903); Seitz, *Grossschm. d. Erde*, x, p. 325, pl. 40f (1917).

Type, ♂, Java, in British Museum.

1 ♂, Province Wellesley; in British Museum. 1 ♀, Kuala Lipis, larva feeding on *Palaquium gutta* Burch; in coll. Agric. Dept., Kuala Lumpur. 1 ♂, Singapore; 1 ♂, Kuala Krau; 1 ♂, Bukit Kutu; in F.M.S. Museum.

Swinhoe's original ♀ allotype does not belong to this species, but is evidently the ♀ of *Lymantria ganara* Moore (1859). Van Eecke illustrates another insect as the true ♀ of *L. brunneiplaga* in *Zool. Med. Leiden*, xi, pl. viii, fig. 3 (1928), and I have followed his conclusion.

142. **Lymantria orestera** sp. nov. (plate II, fig. 42).

♂. Palpus pinkish buff, beneath and on the outerside fuscous. Antenna bistre. Head and thorax pale pinkish buff. Abdomen light coral-red, with a series of fuscous spots laterally and a further series dorsally; anal tuft pale pinkish buff. Pectus pinkish buff, light coral-red in front. Legs with femora bistre, distally light coral-red; tibiae and tarsi pale pinkish buff, the former fringed with long hair. Venter snuff-brown. Forewing white; a small patch of light coral-red at the base of costa; a number of basal and subbasal interneural fuscous spots; an irregular but fairly straight snuff-brown antemedial fascia, at right angles to the inner margin, merging into a large patch of snuff-brown, which occupies the space between vein *Cu*2 and the inner margin and extends to the postmedial fascia; a fuscous spot in the distal half of the cell; a streak of snuff-brown on the discocellulars, beyond which is a conspicuous patch of the same colour extending and widening to the costa; postmedial fascia snuff-brown, crenate (concavities terminad), points on the veins, the whole roughly parallel with the termen; a rather faint subterminal fascia, resembling the postmedial, the portion between veins *R*4 and *R*5 enlarged into a patch of snuff-brown; a series of terminal interneural snuff-brown spots, extending on to the fringe, which is otherwise white. Hindwing tilleul-buff shaded with snuff-brown; a faintly visible snuff-brown streak on the discocellulars, and postmedial and subterminal fasciae; a series of terminal interneural snuff-brown spots, extending on to the fringe, which is otherwise whitish. *Underside* of both wings with pattern faintly reproduced in a more indefinite form, the area in and beyond the cell of forewing, and above the cell to the costa, mainly snuff-brown.

Expanse: ♂♂ 53–58 mm.

1 ♂ (holotype) and 2 ♂♂ (paratypes) May 1931, 1 ♂ (paratype) 14.vi.1923, all at light, 4,800 ft., Tahah Rata, Cameron's Highlands, Pahang (H. M. Pendlebury); 2 ♂♂ (paratypes), at light, 3,450–3,500 ft., April 1926, Bukit Kutu, Selangor (H. M. Pendlebury); F.M.S. Museum. Holotype and one paratype presented to the British Museum.

Resembles *L. brunneiplaga* Swinh. (which also occurs on Bukit Kutu), but easily separated therefrom. *L. orestera* is larger, the fasciae on the forewing more heavily marked, the hindwing lighter and the fasciae more distinct.

I have not seen a ♀, but it is possible that this sex is not easily separated from specimens of *L. brunneiplaga*.

143. **Lymantria strigata** Auriv.

Lymantria strigata Auriv., *Ent. Tidskr.* p. 172 (1894); Seitz, *Grossschm. d. Erde*, x, p. 324 (1917).

Type, ♂, Java, in Stockholm Museum.

1 ♀, at light, 3,500 ft., 18.iii.1931, Bukit Kutu, Selangor (H. M. Pendlebury); in F.M.S. Museum.

This specimen agrees well with two Javanese ♀♀ in the British Museum collection, but has a broader and rather darker border to the hindwing, occupying nearly half the wing area.

144. **Lymantria kinta** sp. nov. (plate I, fig. 7).

♂. Palpus and head amber-brown mixed with light buff, the palpus short and porrect. Antenna amber-brown. Thorax Prout's brown mixed with light

buff. Abdomen above and beneath light buff (darkened by grease in the type), dorsally on the basal segments amber-brown. Pectus light buff, amber-brown in front. Legs amber-brown mixed with light buff. Forewing light buff irrorated thickly with hazel and amber-brown ; basal fourth of wing marked fairly heavily with fuscous, the distal border of this area almost straight, and at right angles to the inner margin ; a >-shaped fuscous mark on the discocellulars ; a crenate hazel subterminal fascia, points on the veins, concavities terminad and to some extent filled in with light buff ; a series of large but indistinct interneural dark patches between subterminal fascia and termen, absent between veins $M2$ and $M3$; fringe light buff, mixed with hazel interneurally. Hindwing light buff, marked with hazel along the termen from vein $Cu2$ to the anal angle. *Underside* of forewing light buff ; some indistinct hazel markings beyond the cell, in the apical area and along the costa ; fringe light buff, hazel interneurally. Hindwing and fringe light buff.

Expanse : ♂♂ 29–35 mm.

1 ♂ (holotype), Kinta Valley, S. Perak, September–October (H. N. Ridley) ; 1 ♂ (paratype), Larut Hills, Perak, 3,000 ft., 20.iv.1898 (S. S. Flower) ; in British Museum. 4 ♂♂ October 1921, 1 ♂ 25.ix.1929, and 1 ♂ 22.ii.1931 (paratypes), Kuala Lumpur (H. M. Pendlebury) ; 2 ♂♂ (paratypes), Bukit Kutu, Selangor, at light, 3,500 ft., 18.iv.1926 and 16.iii.1931 (H. M. Pendlebury); in F.M.S. Museum.

Perhaps nearest to *Lymantria strigata* Auriv. (1894).

145. **Lymantria ganaroides** Strand (?).

Lymantria ganaroides Strand, Seitz, *Grossschm. d. Erde*, x, p. 325, pl. 41c (1917).

3 ♂♂, Kuala Lumpur ; 1 ♂, 3,500 ft., Bukit Kutu, Selangor ; 2 ♂♂, The Gap, Pahang ; 5 ♂♂, 3,200–3,300 ft., Kedah Peak ; in F.M.S. Museum. 1 ♂, Perak ; in Zoological Museum, Berlin.

Strand described this species from 3 ♂♂ with a doubtful patria : " ? New Guinea." He also states : " I have seen a probably very closely allied specimen from Perak." This specimen, which I have before me, is poorly marked and somewhat rubbed, but agrees with the Malayan series enumerated above. Other fresher and better marked specimens in the series conform well to Strand's description and figure, and it seems best to emply the name of *L. ganaroides* for them.

The British Museum possesses no closely allied specimens from New Guinea or the Dutch East Indies.

146. **Lymantria lepcha galinara** Swinh.

Lymantria galinara Swinh., *Trans. Ent. Soc. Lond.* p. 490 (1903) ; Seitz, *Grossschm. d. Erde*, x, p. 326, pl. 40f (1917).

Type, ♂, Singapore, in British Museum.

10 ♂♂, 2 ♀♀, Singapore ; in British Museum. 3 ♂♂, Bukit Kutu, Selangor ; in Tring Museum. 2 ♂♂, Perak ; in Zoological Museum, Berlin. 3 ♂♂, Singapore ; 1 ♂, Kuala Lumpur ; 3 ♂♂, The Gap, Pahang ; 1 ♂, 4,200 ft., Fraser's Hill, Pahang ; 6 ♂♂, 1 ♀, 3,450–3,500 ft., Bukit Kutu, Selangor ; 2 ♂♂, 3,200–3,300 ft., Kedah Peak ; 1 ♀, Parit Buntar ; in F.M.S. Museum.

Swinhoe's allotype ♀ of *L. galinara* is wrongly associated with the ♂, and is the ♀ of *Dasychira cerigoides* Wlkr. (1862). Van Eecke has illustrated the true ♀ in *Zool. Med. Leiden*, xi, pl. viii, fig. 5a (1928). Van Eecke's illustration of the ♂ in fig. 5 of the same plate does not agree with the type, but seems to represent *L. marginalis* Wlkr. (1862). The true ♂ is illustrated in Seitz, x, pl. 40f.

It will be seen that I have sunk *L. galinara* to the level of a subspecies of *L. lepcha* Moore (1879). The ♂ genitalia are similar, but the forewing of the ♂ *galinara* is whiter in appearance and the markings heavier, the hindwing has an orange flush as compared with the pink flush of *L. lepcha*, and the average expanse of *L. lepcha* is greater. The ♀♀ are perhaps distinguishable only by locality.

147. **Lymantria marginalis** Wlkr.

Lymantria marginalis Wlkr., *Journ. Linn. Soc. Lond.* (*Zool.*), vi, p. 131 (1862); Seitz, *Grossschm. d. Erde*, x, p. 326 (1917).

Type, ♂, Sarawak, in Oxford Museum.

1 ♂, 3,000 ft., Bukit Kutu, Selangor; in Tring Museum. 10 ♂♂, 3,500 ft., Bukit Kutu, Selangor; 5 ♂♂, 4,800 ft., Tana Rata, Cameron's Highlands, Pahang; 1 ♂, The Gap, Pahang; in F.M.S. Museum.

The British Museum possesses no ♂♂ from Sarawak, but the type at Oxford is similar in facies to Malayan, Javanese and Sumatran specimens. The type exhibits no marking on the hindwing, but this is also the case with a small proportion of Malayan specimens.

The ♂ is illustrated in *Zool. Med. Leiden*, xi, pl. viii, fig. 5, under the name of *L. galinara*.

The ♀ appears to be unknown.

Lymantria sp.

A single ♀ in rather poor condition, in the F.M.S. Museum collection, labelled "The Gap, 1920, ex coll. Agric. Dept.," bears a strong resemblance to *L. bivittata* Moore (1879). It may be the ♀ of *L. marginalis* Wlkr. (1862), but in the absence of adequate material I have thought it better not to place it under the heading of that species.

148. **Cispia ochrophaea** sp. nov. (plate I, fig. 15).

♂. Palpus ochraceous-tawny, the tip lighter. Antennal shaft whitish, with a streak of snuff-brown running along the upperside; pectinations hair-brown. Head, legs, thorax, and abdomen above and beneath, warm buff, mixed on vertex with Mars yellow. Forewing cinnamon-buff; some indistinct fuscous spots in the basal area; discocellulars whitish; fringe cinnamon buff. Hindwing and fringe whitish. *Underside* of both wings, and fringes, whitish, tinged in the costal area of forewing with cinnamon-buff.

♀. Resembles the ♂, but paler in colour, and with the white on the discocellulars scarcely visible. Tarsi of legs Prout's brown, tibiae mixed with Prout's brown.

Expanse: ♂ 50 mm., ♀♀ 69–77 mm.

1 ♂ (holotype) and 1 ♀ (allotype), Perak, July–August 1895 (Lakatt and Pamboo); in British Museum ex Oberthür collection. 1 ♀ (paratype), Kinta, Perak, August 1898 (Curtis); in Tring Museum.

Allied to *Cispia charma* Swinh.

149. **Cispia aphrasta** sp. nov. (plate I, fig. 21).

♂. Palpus whitish, mixed on the outer side with fuscous. Antenna whitish, each pectination fuscous at the base and at the tip. Head, thorax, abdomen and legs whitish, mixed on tibia and tarsus of foreleg with bistre. Wings semi-hyaline, white, fringes white; forewing with a faint circular Saccardo's umber spot on the discocellulars; similar preterminal interneural spots above veins *R*4, *M*1, *M*3 and *Cu*2, and a further spot postmedially above vein *R*5. Wings beneath, and fringes, white.

♀. Resembles ♂, but with the preterminal interneural spots on the forewing continuous from costa to vein *Cu*2, oblong in shape, the spot between veins *M*1 and *M*2 smaller than the remainder; the angle between veins *R*4 and *R*5, also between veins *R*5 and *M*1, filled in with Saccardo's umber. The foreleg is marked with fuscous in place of bistre.

Expanse: ♂ 28 mm., ♀ 39 mm.

1 ♂ (holotype), near Jitra, Kedah, 9.iv.1928 (H. M. Pendlebury); 1 ♀ (allotype), Patalung, Peninsular Siam, at light, 2.v.1924 (I. H. N. Evans); F.M.S. Museum. Types presented to British Museum.

I have included these two insects under the same name with some hesitation. They were taken in localities about 100 miles apart, but are very distinct from any other species.

150. **Imaus durioides** Strand.

Imaus durioides Strand, in Seitz, *Grossschm. d. Erde*, x, p. 330, pl. 40a (1915).

Type, ♂, (?) New Guinea.

1 ♂, Gunong Ijau, Perak; in Tring Museum.

151. **Imaus munda** Wlkr.

Lymantria munda Wlkr., *List Lep. Ins. B.M.* iv, p. 875 (1855).
Imaus mundus Wlkr., Seitz, *Grossschm. d. Erde*, x, p. 330, pl. 40b (1915).

Type, ♀, Silhet, in British Museum.

1 ♂, at light, 18.x.1921, Gombak Valley, Kuala Lumpur (H. M. Pendlebury); in F.M.S. Museum.

In the Tring Museum are long series of Indian and Javanese specimens, which can be separated in both sexes by the shape of the markings in the subterminal fascia of the forewing, >-shaped in Indian specimens and oblong in Javanese specimens. In this respect and in other small details of marking the ♂ from Kuala Lumpur resembles the Indian race.

152. **Dura amianta** sp. nov. (plate I, fig. 10).

♀. Palpus porrect, whitish, on the outerside fuscous. Antennal shaft whitish, pectinations Saccardo's umber. Head, thorax, abdomen and legs whitish. Forewing whitish, crossed by four indistinct fuscous fasciae, of which the postmedial is crenate, points on the veins, concavities terminad; the subterminal fascia crenulate and roughly parallel with the termen; discocellulars edged faintly with fuscous; a series of small terminal interneural fuscous spots; fringe whitish. Hindwing and fringe whitish. *Underside* of both wings, and fringes, whitish; on the discocellulars of the hindwing an indistinct fuscous spot.

♂. Resembles the ♀, but without the discocellular spot on the underside of the hindwing.

Expanse : ♂ 38 mm., ♀♀ 46–52 mm.

1 ♀ (holotype), Kuala Lumpur, 1.v.1920 (W. A. Lamborn) ; Oxford Museum. 1 ♂ (allotype), Perak (Hartert) ; Zoological Museum, Berlin. 1 ♀ (paratype), Padang Rengas ; Tring Museum.

Allied to *Dura alba* Moore (1879), but much paler, and without the series of terminal spots in the hindwing.

153. **Dura panthera** v. Eecke.

Dura panthera v. Eecke, *Zool. Med. Leiden*, xi, p. 137 (1928).

Type, ♀, Sumatra, in Tring Museum.

1 ♂, Malacca (W. Doherty) ; in British Museum. 1 ♂, 1,000 ft., 22.iii.1898, Government Hill, Penang (Curtis) ; in Tring Museum. 1 ♀, 3,450 ft., April 1915, Bukit Kutu, Selangor ; in F.M.S. Museum.

The two ♂♂ measure 43 and 44 mm. in expanse, and are not distinguishable from the ♀ in markings.

In the original description of the type ♀, van Eecke describes and illustrates the peculiar path of vein *R*2 in the forewing, which approaches so near to vein *R*1 that it appears to form two areoles. In the present series from Malaya, and also in a ♀ from Kuching in the British Museum collection, vein *R*2 rises from the stalk of *R*3–*R*5 just beyond the cell, and takes a direct path to the costa near the apex. The venation of the type is no doubt abnormal in this respect.

The present species does not show an angled hindwing as in other species of *Dura*, nor does vein *M*1 of the forewing arise from below the upper angle of the cell. It would seem to fall better into the genus *Lymantria* Hübn., but as considerable revision is called for among allied species, it seems best to postpone any transfer until a more general review can be undertaken.

EXPLANATION OF PLATES I AND II.

PLATE I.

Fig.	1.	*Euproctis epinephela* sp. nov., ♀ holotype	p. 73
,,	2.	,, *acodes* sp. nov., ♂ holotype	p. 69
,,	3.	,, *adela* sp. nov., ♀ holotype	p. 70
,,	4.	,, *callipotama* sp. nov., ♀ holotype	p. 65
,,	5.	,, *eumorpha* sp. nov., ♂ holotype	p. 77
,,	6.	,, *hypolispa* sp. nov., ♀ holotype	p. 70
,,	7.	*Lymantria kinta* sp. nov., ♂ holotype	p. 97
,,	8.	*Porthesia orphnaea* sp. nov., ♀ holotype	p. 58
,,	9.	*Laelia melantera* sp. nov., ♂ holotype	p. 83
,,	10.	*Dura amianta* sp. nov., ♀ holotype	p. 100
,,	11.	*Euproctis chalcostoma* sp. nov., ♂ holotype	p. 79
,,	12.	*Laelia venosa* Moore, ♂ holotype	p. 83
,,	13.	*Euproctis protea* sp. nov., ♂ holotype	p. 61
,,	14.	,, *phaula* sp. nov., ♂ holotype	p. 71
,,	15.	*Cispia ochrophaea* sp. nov., ♂ holotype	p. 99

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,, 19. *Mardara ruficeps* Hamps., ♀, Perak . . . . . p. 90
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PLATE II.

Fig. 28. *Dasychira diplozona* sp. nov., ♂ holotype . . . . . p. 87
,, 29. *Euproctis stenopa* sp. nov., ♂ holotype . . . . . p. 64
,, 30. ,, *plagiata syngenes* subsp. nov., ♀ holotype . . p. 61
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,, 37. *Euproctis javana epirotica* subsp. nov., ♀ holotype . . p. 65
,, 38. ,, *tamsi* sp. nov., ♂ holotype . . . . . p. 68
,, 39. *Dasychira callima* sp. nov., ♂ holotype . . . . p. 89
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NEW EXOTIC GEOMETRIDAE.

By LOUIS B. PROUT.

Subfam. LARENTIINAE.

1. Larentia hancocki sp.n.

♂, 39–41 mm. Nearly related to *heteromorpha* Hmpsn. (*Tr. Zool. Soc. Lond.* xix. (2), p. 128, t. iv, f. 61) but much larger. Antenna slightly longer, the pectinations slenderer, continuing to about the 26th, sometimes even to the 28th joint (in *heteromorpha* to about the 23rd–25th).

Forewing with SC^5 from apex of distal areole or slightly stalked beyond, or still more distal; much more glossy than *heteromorpha*, rather thin but tough (texture of so many high-altitude or winter *Larentiinae*); darker and more uniform grey-brown, relatively weakly marked, the white element almost entirely suppressed, or at best an admixture of whitish scales in the three palest lines (borders of median area and the interrupted subterminal); median band generally broad (6·5 to 8·5 mm. at costa), fairly solid or with paler centre and distinct proximal and distal line); postmedian line more jagged than in *heteromorpha*, at least anteriorly to the double lobe; fringe less sharply marked than in *heteromorpha*.——*Hindwing* very glossy, pale drab-grey; a minute cell-dot; traces of the markings of the underside, especially the postmedian (which ends in a darker spot at abdominal margin) and sometimes some suffusion proximal thereto.

Underside well marked, though less sharply than in *heteromorpha*, the ground-colour being less whitish; forewing with the principal markings reproduced, excepting the antemedian (the dark median suffusion continuing to the base); hindwing at least with sharp cell-dot, strongly sinuous (twice incurved) postmedian and somewhat macular presubterminal shading, often also with some additional though weaker lines.

Ruwenzori: Bujuku, 12,500 feet, 18 August 1931, 6 ♂♂, and 12,000 feet, 16 August, 2 ♂♂ (G. L. R. Hancock). Type in Mus. Brit.

Rather variable, but not extravagantly. The brown tinge which usually suffuses the median area of the forewing above is more reddish than that which suffuses the proximal subterminal region and (more weakly) the subbasal, this latter tinge more inclining to cinnamon or tawny olive. A more strongly marked ♂ from Kigo, 10,500 feet, 20 August, with the shades lighter and brighter (cinnamon-buff to clay-colour), the basal and median bands darker mixed, and strong proximal spots to the subterminal, is probably conspecific; expanse 39 mm.

The much larger size and the grey hindwing distinguish *hancocki* at once from *heteromorpha*; the size equally from the still darker *wellsi* Prout (1928), which may possibly prove a somewhat melanic form of *heteromorpha*. Both were taken with *hancocki* at 12,000 feet.

2. Gonanticlea penicilla sp.n.

♂, 35–36 mm. *Forewing* closely like that of *amplior* Th.-Mieg (1910) but looking slightly less broad, on account of the rather less square-cut tornus; pale

central band fairly broad, at least posteriorly, in none of the known examples so whitish as in normal *amplior* ; distal prominence of the dark area beyond more nearly parallel with the termen at its outer edge than in *amplior*, thus noticeably further from termen behind R^3.——*Hindwing* quite differently shaped from that of *amplior*, elongate costally (and to extremity of SC^2) instead of hindmarginally ; a longitudinal pale buff hair-pencil on upperside, arising in base of cell between SC and cell-fold ; colour bright in the type, but more suffused in Javan examples, which I would not, without more material, separate racially, in neither case with the broadly smoky abdominal area of *amplior*, etc.

♀ probably variable, as in the allies ; three which may pretty safely be referred here are closely similar to large *occlusata* Feld. (1875) ♀♀, the hindwing intermediate in tone between those of *o. occlusata* and *o. laetifica* Prout (1931) ; in all three the cell-dot of the forewing stands outside, instead of on, the edge of the proximal dark band.

W. Sumatra : Korintji, 4,500 feet (type ♂) and 7,300 feet (1 ♀) (Robinson & Kloss). Java : Bandong, 1 ♂ ; 2 ♀♀ not exactly localized. All in coll. Tring Mus. Also a ♂ from Mt. Gedé, 4,000 feet (Fruhstorfer), in the Oberthür collection.

3. **Polyclysta gonycrota** sp.n.

♀, 28 mm. Face pale, mixed with fuscous. Palpus fully 2, 2nd joint slightly down-curved, 3rd elongate, slightly more so than in the genotype, *hypogrammata* Guen. (1858) ; 1st and 2nd joints dark fuscous on outerside, 3rd (with extremity of 2nd) pale. Vertex pale, tinged with ochreous. Thorax above largely fuscous ; abdomen pale, slightly ochreous, with weak dark dorsal paired spots (or interrupted saddles).

Forewing at least as elongate as in *hypogrammata* ♀, the tornus perhaps still weaker ; cell not quite ½, SC^2 from close to apex of cell, R^2 from very slightly behind end of cell-fold ; whitish, tinged with buff ; markings dark brown (bistre to sepia), mixed in places with deep red scaling, which occupies most of the veins on the dark areas ; ground-colour remaining in a streak along SC and an intricate pattern of lines ; a subbasal pair (the proximal strong, the distal faint) angled outward at fold ; an antemedian strongly oblique inward from costa to SC, then slightly curved outward, bending sharply (curved rather than angled) after crossing fold, oblique inward to hindmargin near second subbasal ; an almost equally strong line (? median) commencing at costa near the antemedian (well proximal to mideosta), parallel with it at first, but angled on end of cell-fold to run out almost longitudinally to R^3, almost touching first postmedian, then oblique inward to fold, almost touching antemedian, finally about vertical to hindmargin ; area between these two lines more pale-mixed than other dark areas ; two very fine sinuous postmedian lines, succeeded by a very strong one from beyond ¾ costa to near tornus and with an outward curve between R^2 and M^2 ; a fine line beyond and parallel with this, separated by a bright brown line ; a thick dash from apex, on R^1 touching the last postmedian ; a waved subterminal from R^1 to SM^2 close to termen, acutely angled inward on M^2 ; the space between last postmedian, apical dash, subterminal line and R^3 presenting a rather solid dark, irregularly triangular patch ; pale streaks from subterminal to termen, separating the terminal dark spots.——*Hindwing* long and narrow (very decidedly more so than in *hypogrammata*) ; DC (as in some ♀♀ of *Crasilogia*)

not actually biangulate, but with R^2 central, arising very slightly behind cell-fold; whitish buff, with cell-dots and traces of bands of underside.

Underside more suffused with cinnamon-buff; forewing with principal markings of upperside weakly reproduced or indicated, the darkest parts (between first subbasal and antemedian and again from the strongest postmedian inward about to the cell) presenting themselves as ill-defined dusky bands; hindwing with cell-spot, thickish wavy postmedian line and faint dusky subterminal band.

Viti ? (C. A. Stuhlmann).[1] type in Zool. Mus. Hamburg.

Without the ♂, which will almost certainly be highly specialized, it is impossible to divine the exact position of this very distinct species. It should, however, fall into the group of *Polyclysta*, *Protaulaca*, and *Crasilogia*, which—for purposes of this description—may be regarded as merely ♂ sections of one comprehensive genus.

4. **Collix stellata** Warr.

Collix stellata Warr., *Nov. Zool.* i, 679 (1894) (Khasis).

Warren's type, a rather small ♂, has the palpi abraded and is unfortunately somewhat damaged by mould, but is clearly conspecific with a Khasi ♂ 1 mm. larger and a very small "Assam" [Khasi] ♂, both in the Tring Museum, and probably a worn Shillong ♂, also in that collection. A growing suspicion that these represented a different species from most of the material which has been passing for *stellata* has been confirmed by Mr. Tams on an examination of the genitalia of an example of each from the Joicey collection. The uncus in *stellata* is decidedly narrower, valve perhaps slightly longer, than that of the other species, in which it is identical with that of *griseipalpis* Wileman.

5. **Collix griseipalpis** Wileman.

"*Collix stellata* Warr. (?)" Prout, *Ent. Mitt.* iii, 248 (1914) (Formosa).
Collix griseipalpis Wileman, *Entom.* xlix, 34 (1916) (Formosa).

On account of Warren's having determined the (not uncommon) Khasi race of this species as *stellata*, I have long been treating the two as races of one species; see the preceding note. My comparisons of "*stellata*" in erecting some of my new species (*vide* NOV. ZOOL. xxxii, 42; xxxv, 66) are therefore to be referred to *griseipalpis*, although the close similarity of the two species makes them at least approximately accurate as they stand. *C. griseipalpis* is more sharply marked than *stellata*, with the subbasal, median and postmedian lines of the forewing more blackened at costa, the postmedian more sharply angled inward at SC^5, the palpus paler, but black-marked on outerside. Besides the name-typical form, I recognize two races, both of which agree perfectly with it in the genitalia.

C. g. relocata subsp. n. Generally larger than *g. griseipalpis* (35–40 mm.), a little less dark and still more sharply marked, the postmedian on an average less broad, the underside sometimes less heavily streaked longitudinally, the lateral orange streak of abdomen perhaps less often clear. Khasis, not rare, the type ♂ in coll. Tring Mus.

C. g. phaeochiton subsp. n. Costal margin of forewing perhaps somewhat more rounded than in the other races; ground-colour slightly darker and less brown-tinged than in *g. griseipalpis*, the lines rather weak, but more or less

[1] All the specimens bearing this labelling in the Museum, so far as I have seen, are indisputably Fijian species.

strongly black-dotted at the veins, the postmedian at costa hardly thickened, subcostally with about as sharp an indentation as in *g. relocata*, the white subterminal dots very sharply expressed. Malay Peninsula: Kuala Lumpur, bred from larvae on *Trigonostemon indicus* (G. H. Corbett), 12 in Mus. Brit., including the type ♂, others bred from larvae on *Ardisia* sp. (H. M. Pendlebury); Peninsular Siam and—possibly a different race or another very close ally, with cell-spot larger, etc.—Kedah Peak (H. M. Pendlebury).

6. **Eupithecia dissobapta** sp.n.

♀, 13–14 mm. Head whitish. Face rather flat, with a very slight dark ridge at lower edge. Palpus slender, not greatly over 1, dark-marked on outerside. Tongue strong. Antenna minutely ciliated. Body and legs whitish, with some brown irroration; hindtibial spurs rather short.

Forewing elongate, costa very slightly arched near base and in distal half, apex rather acute, termen very strongly oblique, faintly curved or bowed; areole simple; white, irregularly irrorated with fuscous-black, with the three principal lines of this colour; subbasal irregularly band-like, twice acutely angled outward; antemedian thickest anteriorly, strongly incurved behind base of M^2, angled outward on SM^2, oblique inward to hindmargin: an interrupted ochre-red band between, separated from each by a white line; median area broad, the postmedian thickened (at least between costa and medians, but not sharply defined proximally, the irroration becoming progressively denser, particularly in the type, between the inconspicuous cell-spot and the line), somewhat oblique outward from costa to SC^5, rather more so just behind SC^5, between this and R^3 or M^1 only about 1 mm. distant from termen, between the medians deeply and again near hindmargin more shallowly inangled, with a rounded lobe between these angles; an ochre-red band occupying most of the distal area, separated from postmedian by a white line and showing in places—at least at costa and an enlarged spot between the medians—the white subterminal, with some weak and variable dark maculation at its proximal side; terminal line broken into elongate spots; fringe rather long, weakly mottled, with white interneural spots at base. ——*Hindwing* with apex rounded, termen rounded about R^3–M^1, straighter before and behind: SC^2–R^1 very well stalked; darker than forewing, less variegated; predominantly fuscescent, a white admixture appearing chiefly in median area; indefinite bands showing through from beneath, the postmedian whitish-edged distally; terminal line and fringe nearly as on forewing.

Both wings beneath as far as the postmedian suffused with grey, especially the forewing, in which it shows a more drab tinge; a postmedian band (sometimes strong) and indications of blurred antemedian and median ones, the three separated by more white-mixed areas; distal area paler, sometimes conspicuously so, but always showing (excepting the white boundary-line of the postmedian) some irroration.

Madagascar: Station Perinet, 148 km. E. of Tananarivo, 20 October–10 November 1930 (Mme N. d'Olsoufieff), 7 ♀♀ in Tring Mus.

A pretty and very distinct little species.

7. **Eupithecia streptozona** sp.n.

♀, 14 mm. Face-cone short. Palpus rough-scaled, rather short (less than 1½). Antenna minutely ciliated. Head and body concolorous with wings,

palpus with some dark scales on outerside. Hindtibia with only one proximal spur present, terminals moderate.

Forewing of medium width, termen straightish anteriorly and posteriorly, gently curved in middle; cell ½ or slightly over, DC^1 present though short; areole simple; whitish buff, in places suffused or weakly mottled with cream-buff (at least in distal area), the coloration more suggestive of a *Sterrha* (*e.g. S. rusticata* [Schiff.]) than of normal *Eupithecia*; cell-spot strong; other markings relatively weak; basal patch chiefly indicated by a costal streak at about 1 mm.; median band darkened with grey irroration but not intense, the ante- and postmedian costal spots rather strong, only 1·5 or 2 mm. apart (the broadest-banded specimen showing also a smaller median spot), the antemedian thence slight, curved, the postmedian from the spot nearly to R^1 strongly oblique outward, then somewhat sinuous, as far as R^3 parallel with (or continuing very slightly to approach) the termen, thence somewhat more oblique inward than termen; subterminal defined by dark shading proximally, strongest at costa; terminal line weak, apparently punctiform; fringe pale.——*Hindwing* shaped nearly as in the preceding species, slightly more rounded; cell about ½; SC^2–R^1 shortly stalked; concolorous with forewing; cell-dot sharp, but smaller than on forewing; markings otherwise slight, excepting a strong abdominal spot at end of postmedian; antemedian also slightly strengthened at abdominal margin; median band variable, either obsolescent or fairly strong, though only distally to the cell-dot; postmedian following a similar course to that of forewing, but more strongly oblique inward behind R^3 and incurved about fold; terminal line and fringe as on forewing.

Underside similar.

Madagascar: Station Perinet, 149 km. E. of Tananarivo, 20 October–10 November 1930 (Mme N. d'Olsoufieff), type and paratype in Tring Mus. S. Betsileo (Hildebrandt), 1 ♀ in Zool. Mus. Berlin, with the median band rather well developed.

All three examples are worn, but with the aid of the three all the essential markings have been definitely made out, while the coloration and peculiar structure—suggesting a doubt whether a new genus should not be established—render it easy of recognition.

8. **Chloroclystis scintillata** sp.n.

♂♀, 13–14 mm. Face-cone strong. Palpus nearly 2; 2nd joint rough-scaled above, 3rd joint small. Antennal ciliation of ♂ minute. Head and body concolorous with wings; a blackish transverse stripe connecting bases of forecoxae.

Forewing with SC^1 running into C; grey, in places suffused with purplish brown; copious scattered bronzy metallic scales (in some lights more silvery or iridescent); antemedian double or band-like, straighter and posteriorly less oblique than postmedian, its distal edge outbent at both folds; postmedian with a blunt, flattened prominence about SC^5–R^3; subterminal irregularly dark-shaded, in part crenulate, about R^3–M^1 nearly always cut by a pale longitudinal spot; fringe weakly mottled.——*Hindwing* with termen rounded; SC^2 not stalked; principal markings continued.

Underside much paler; the two lines developed, at least on forewing, but not sharp.

Fiji: Lautoka (H. Phillips), a series in beautiful condition. Type in coll. Brit. Mus.

Probably a small race of the little-known *inexplicata* (Walk., 1866) which I have re-examined since describing the above as new. A striking peculiarity, hitherto unnoticed, is an oblique process from the upperside of the ♂ foretarsus, causing its 1st joint to appear forked; this is exhibited by both the species or races in question.

9. **Asthenotricha torata** sp.n.

♂, 28 mm. Head and body pale, irrorated with red-brown and some dark scales. Antenna almost simple, scaled area dark-dotted.

Forewing less broad than in the other species, apex minutely produced, termen waved, bowed, rather strongly oblique posteriorly; an extensive specialized area in anterior part of cell, bounded on underside by a pretty regularly curved line which runs from areole (and DC^2) to SC scarcely more than 2 mm. from base and in its middle is scarcely over 1 mm. from M; pale, as far as the postmedian with dense red-brown irroration and a few darker scales, distally with the brown scaling slightly less reddish and less evenly disposed; coarse suberect dark-tipped scales at proximal part of costa, succeeded (on and behind the "specialized area" as defined above) by more floccous hair-tufts; a sinuous dark postmedian line from nearly $\frac{2}{3}$ costa, slightly oblique outward and faintly wavy to R^3, then bluntly bent, more sinuous, nearly parallel with termen except for a deeper proximad angle at M^2; faint indications of a more dentate line beyond and nearly parallel with this, indefinitely pale-edged distally at all the folds; the pale subterminal lunulate-dentate, about parallel with termen, defined by indistinct lines; terminal line moderate; a pale line at base of fringe. ——*Hindwing* with termen subcrenulate, especially behind middle; R^2 from near R^1; nearly concolorous with distal part of forewing, though with some faint reddish suffusions in proximal part; postmedian present but weak, more sharply angled at R^3 than on forewing; distal markings much as on forewing or still weaker.

Forewing beneath more whitish behind M and M^1, anteriorly coloured nearly as above; the specialized area with rough scaling, looking slightly darkened; suggestions of a dark line on DC^{2-3}; postmedian and distal area nearly as above. Hindwing beneath much as above, or slightly more reddish.

Madagascar: Station Perinet, 149 km. E. of Tananarivo, 20 October–10 November 1930 (Mme N. d'Olsoufieff), 1 ♂ in Tring Mus.

SUBFAM. **GEOMETRINAE.**

10. **Mauna diasporas** sp.n.

♂, 42 mm. Palpus scarcely $1\frac{1}{2}$, 3rd joint distinct, though small. (Antennae lost.) Head and thorax pecan-brown, the tegulae mixed with violet, the thorax beneath partly whitish; abdomen rather slender for a *Mauna*; paler, at base white. Hindtibial dilation strong; hindtarsus shortened.

Wings broader than in typical *Mauna*, shaped as in *perquisita* Prout (1922). ——*Forewing* pecan-brown, dulled with grey (which to the naked eye looks somewhat purplish grey) and with a few black scales; cell-dot small, black; antemedian line faintly traceable in grey, oblique outward from costa at 5 mm.,

acutely angled just in front of M close before origin of M^2, then oblique inward ; postmedian fine, blackish, slenderly defined by whitish distally, arising at costa 2 mm. from termen, at first oblique and curving to become more so, from R^2 or R^3 straight, reaching hindmargin little beyond middle ; termen and fringe slightly warmer brown.——*Hindwing* white at base, gradually assuming a tinge of light buff ; a very faint curved line suggested, rather than expressed, at about 5 mm. from termen.

Forewing beneath with costal and distal borders a little paler than above, the rest much paler ; postmedian line strong from costa to R^1, then dying out. Hindwing costally and anterio-terminally more buff-tinged than above, even inclining—especially at apex—to the brown of forewing ; a curved grey line about 3·5 mm. from termen, strongest anteriorly, especially on the veins.

Uganda : Nyimabitaba, Mt. Ruwenzori, 8,500 feet, 21 August 1931 (G. L. R. Hancock), 1 ♂. Type in Brit. Mus., presented through the Imperial Institute of Entomology.

Probably nearest to *ardescens* Prout (1916). It is the first *Mauna* known from Uganda ; the genus is chiefly South African, though I have described one species (*electa* Prout, 1917) from Nyasaland.

11. **Derrioides hypopyrrha** sp.n.

♀, 40 mm. Face dull brown, mixed with blackish. Palpus 1½ or barely ; bright red, the terminal joint blackish, very small. Antennal pectinations reduced to strong serrations. Vertex and base of antenna very pale grey ; the rest of antennal shaft reddish brown. Thorax and abdomen concolorous with wings ; legs predominantly greyish, the femora largely red.

Forewing with termen slightly more waved than in the type species ; $SC^{5,3,4}$ very long-stalked, R^2 arising unusually near R^1 ; prussian red, much suffused, especially costal margin and distal area, with dull purple, costal margin with some white-grey irroration, which apically spreads as far as the radials ; cell-spot grey, inconspicuous ; an oblique whitish (very pale olive-buff) line from costa (2 mm. from apex) almost straight to about ⅗ hindmargin, broadly shaded with dark grey on its proximal side and more finely and indefinitely on its distal ; fringe dark grey mixed with whitish, and with reddish spots at the vein-ends.——*Hindwing* with termen somewhat more crenulate than in typical *Derrioides* ; colouring and line of forewing continued ; costal edge clearer and redder ; fringe as on forewing.

Underside predominantly orange-red (dragon's blood red to vinaceous-rufous), especially on the greater part of forewing, elsewhere more purplish ; some grey, white-mixed speckling, especially costally on forewing and on distal half of hindwing ; the oblique line more sharply whitish, somewhat broadened (especially on the hindwing), its proximal dark grey band on the forewing with indications of a very fine pale line near the proximal edge ; fringe nearly as above.

Madagascar : Station Perinet, 149 km. E. of Tananarivo, 20 October–10 November 1930 (Mme N. d'Olsoufieff), 1 ♀ in Tring Mus.

12. **Drepanogynis protactosema** sp.n.

♂, 32–34 mm. Face brown. Palpus 1½, with 3rd joint very small ; black distally ; the hair beneath 1st and 2nd joints red. Vertex and extreme base of

antenna white ; antenna otherwise buff, a large part of the shaft (except distally) suffused with reddish ; pectinations 3 or 4, a rather longer part of the tip non-pectinate than in typical *Drepanogynis*. Body rather robust, pallid purple-drab, the abdomen with some reddish-fawn suffusion and with anal end darkened.

Forewing not broad, rather elongate, apex not produced, termen smooth, strongly curved in middle to become rather strongly oblique, tornus not strong ; SC^4 running to apex, R^2 somewhat before middle of DC ; pallid purple-drab or slightly more violaceous, with quite sparse blackish irroration ; costal edge narrowly reddish ; black spots at costa just beyond $\frac{1}{3}$ and at $\frac{2}{3}$, the former extended to reach cell-fold, the latter flattened, only just crossing the stalk of SC^{3+4} ; a minute cell-dot ; antemedian wanting ; postmedian double from R^1 to hindmargin, about as oblique as termen but faintly curved in the opposite direction ; inner postmedian (greyish) olive, continued on and just in front of R^1 as a blackish dash, from which runs at an acute angle an extremely fine olive continuation to connect it with the costal spot ; outer postmedian blackish, weak anteriorly ; subterminal deeply lunulate, chiefly defined by darkish shading on its proximal side ; very indistinct dark terminal patches, from costa to R^2 and from M^1 about to fold ; fringe somewhat browner.——*Hindwing* rather elongate costally, apex and termen (especially anteriorly) well rounded, smooth ; double postmedian continued, straightish, oblique, the inner running to abdominal margin near tornus, the extreme end of the outer lost in a grey suffusion close to tornus ; proximal area pallid purple-darb, distal strongly suffused with fawn ; subterminal traceable, posteriorly with some indistinct spots proximally.

Underside much more uniformly suffused with fawn, the forewing apically (in front of R^1) and the hindwing abdominally pale ; costal edge of forewing more reddish, proximally with some coarse black irroration ; some scattered dark irroration elsewhere ; very small black cell-dots ; a fairly thick pale postmedian line, on both wings curved or bent about R^1, thence on forewing straightish, on hindwing faintly incurved, lost in the pale abdominal region.

Madagascar : Station Perinet, 149 km. E. of Tananarivo, 20 October–10 November 1930 (Mme N. d'Olsoufieff), 3 ♂♂ in coll. Tring Mus. A smaller, much damaged ♀ of a similar species—possibly even an ab. of *protactosema*—was taken by Melou at Diego Suarez in December 1916.

13. **Hypochrosis euphrantica** sp.n.

♀, 35 mm. Head, with antenna, dark, strongly suffused with purple-red ; palpus little over 1, rather slender, upcurved, reddish, proximally more mixed with buff ; tongue well developed ; pectinations long (6 or over). Thorax and abdomen (partly denuded above) beneath predominantly yellow, with the thorax red-mixed ; legs dull rosy.

Forewing moderate, apex not falcate (shape nearly as in *tinctaria* [Walk., 1862], or, rather, the less well known *flavifusata* [Moore, 1888]) ; SC^1 anastomosing shortly with C, R^2 well before middle, but not extreme ; marguerite-yellow, with a very broad rosy border (about 5 mm.) from hindmargin to near SC^5 (hellebore-red or slightly brighter) ; cell-spot blackish, immediately preceded by a very slightly curved black-grey transverse bar of 1 mm. width, which gradually fades away behind the fold ; ground-colour proximally to this bar with a good

deal of rosy suffusion and with some thick black-grey strigulae chiefly in and behind cell ; a roundish dark, red-brown centred costal spot about 3 mm. from apex.——*Hindwing* with termen slightly more rounded than in *tinctaria* ; marguerite-yellow (or slightly brighter) proximally, hellebore-red (or slightly brighter) distally, the small dark cell-dot lying on the little curved boundary of the two colours ; a weak dark costal dash at corresponding position ; a very narrow apical border of the yellow colour, tapering to a point just behind R^3 ; fringe yellowish (partly lost).

Underside similar, the yellow brighter, the red paler, the proximal suffusion of the forewing more orange ; hindwing with costal mark stronger, more pyramidal, yellow border anteriorly broader, continuing to near tornus, though posteriorly somewhat mixed with reddish.

Madagascar : Station Perinet, 149 km. E. of Tananarivo, 20 October–10 November 1930 (Mme N. d'Olsoufieff), 1 ♀ in Tring Mus.

14. **Psilocerea barychorda** sp.n.

♂, 35 mm. Head whitish ; palpus light brown, with 1st joint paler and more buff-tinged, 2nd dark-sprinkled on outerside. Thorax and abdomen concolorous with wings, the abdomen dorsally with a slightly interrupted dark patch on the posterior segments. Legs pale, dark-spotted ; hindtibia not dilated.

Forewing shaped nearly as in the ♂ of *rachicera* Butl. (1880), termen slightly less sinuous ; cell appreciably less than ½, the short stalk of SC^{1-2} arising from that of SC^{3-5} ; ground-colour nearly as in *rachicera* ♂ ; markings darker ; antemedian similarly outbent in cell, but stronger, especially anteriorly, on costa closely preceded proximally by a redder mark ; postmedian thick, fuscous, arising from apex, markedly incurved in anterior part, running close to costa for some distance, closely approaching the small cell-dot, straighter and oblique from base of M^1 to before (proximal to) middle of hindmargin ; the line is accompanied anteriorly (between SC^4 and SC^5) by some dull lavender shading on its proximal side, thence by a line of its own width, which is red-brown to R^1, subsequently buffy olive ; subterminal markings of underside faintly showing through ; fringe warmer than wing, dark-mixed at base, especially at vein-ends. ——*Hindwing* shaped about as in *rachicera* ; concolorous with forewing, the broad double line (olive and fuscous) continued, crossing end of cell, proximal edge crossing furcation of M with M^2 ; an almost longitudinal dark mark beyond it, its more proximal part arising in front of M^2, its distal occupying the base of cellule 3, its middle part (on M^1) rather less dark and redder ; subterminal markings of underside showing ; fringe as on forewing.

Underside similar, with the principal markings reproduced but strongly shaded in part with Sanford's brown, which also suffuses the base of the forewing (followed by dark subbasal spots), forms a conspicuous subapical patch on the forewing between R^1 and costa and a costal patch accompanying the line on hindwing ; subterminal markings mixed with fuscous and orange-brown, on the forewing oblique from M^1 to near tornus, strongest posteriorly, on the hindwing complete, dentate, suffusing towards termen in anterior half.

Madagascar : Station Perinet, 149 km. E. of Tananarivo, 20 October–10 November 1930 (Mme N. d'Olsoufieff), 1 ♂ in coll. Tring Mus.

15. **Psilocerea severa** sp.n.

♂, 46 mm. ; ♀, 49–50 mm. Larger than *nigromaculata* Warr. (1897). Forewing with apex slightly more produced, hindwing without even the blunt angle at R^3 ; irroration rather less coarse (general tone nearest to warm buff of Ridgway) ; antemedian line not crenulate ; the principal oblique line dark, sharply defined by a pale line distally, subapical markings of forewing wanting, though the ♂ (besides 1 ♀ beneath) conserves a black dot on SC^5 ; lines or slender shades of distal area without black maculation.

Madagascar : Station Perinet, 149 km. E. of Tananarivo, 20 October–10 November 1930 (Mme N. d'Olsoufieff), 1 ♂ (type), 2 ♀♀, in coll. Tring Mus.

I have compared the new species with what I believe to be the normal form of *nigromaculata*, which is less dusky and less heavily marked than the type and was taken (2 ♂♂) with *severa*. Antenna of ♀ subserrate, with very short ciliation (the ♀ of *nigromaculata* unknown to me).

16. **Psilocerea harmonia** sp.n.

♂♀, 38–42 mm. Antenna of ♂ pectinate to little beyond middle, of ♀ simple. Hindtibia of ♂ with hair-pencil. Head and body concolorous with wings, face generally a little paler, 2nd and 3rd joints of palpus with some dark irroration.

Forewing with termen in ♂ almost straight (without even the faintest angle at R^3), in ♀ bluntly angled in middle, very faintly concave between this and the minutely produced apex ; $SC^{1,2}$ shortly stalked, SC^1 anastomosing slightly with C ; ochraceous, the costal margin and veins slightly more warmly coloured ; indistinct greyish strigulation and a few blackish scales ; cell-dot small, black ; antemedian line fine, indistinct or obsolescent, rather variable, curved or bluntly bent at M just proximal to M^2 ; postmedian line strong (except at costal extremity), bicoloured, its proximal half grey, its distal bright red-brown, from near (2 or 3 mm. from) apex oblique to a little beyond middle of hindmargin ; a slight grey costal mark running inward from postmedian in front of SC^5 to costa ; ill-defined grey subterminal clouding behind R^3, running in the direction of, and sometimes reaching, the tornus ; fringe noticeably darkened, with a pale line at base.——*Hindwing* with termen angled at R^3, in the ♂ on an average more sharply than in the ♀ ; postmedian line continued, reaching abdominal margin about middle ; subterminal maculation stronger between R^3 and M^2 (often forming two spots), sometimes weakly developed also between the radials, here and towards tornus more distally placed than between R^3 and M^2 ; fringe as on forewing.

Underside rather paler, with cell-dots and traces of the outer marking.

Grande Comoro, July–September 1911, 8 ♂♂, 5 ♀♀, including the type ; July, September and October 1921, 2 ♂♂, 1 ♀ ; all in Tring Mus., collected by G. F. Leigh.

I have been calling this species *russulata* Mab. (*Ann. Soc. Ent. Fr.* lxvi, 226, 1897, as *Caberodes*), said to be from the Comoro Islands. No size is given, nor exact shape, and the description seemed to fit quite satisfactorily ; but the discovery of the type ♂ (in coll. Oberthür) shows that it is a smaller species, with termen of both wings bent, that of hindwing more weakly than in *harmonia* ♂, the distal half of the double postmedian line glaucous-whitish, not reddish, the subterminal patch of the hindwing wanting.

Ps. harmonia jacobi subsp.n. is less ochraceous, the ♂♂ in general more darkly irrorated and with intensified subterminal spots between R^3 and SM^2 of the hindwing, the ♀♀ paler and rarely with even a shadow of these spots, the double postmedian line bordered with pale cream-buff distally.

Madagascar: Diego Suarez (G. Melou), 20 ♂♂, 12 ♀♀, type in Tring Mus.

Ps. insularia (Mab., 1880, as *Caberodes*) is easily distinguishable from this, apart from the colour (which is liable to vary), by its shape—forewing in both sexes minutely produced at apex, gibbous centrally, hindwing weakly gibbous, not angled.

17. **Psilocerea olsoufieffae** sp.n.

♂, 40–44 mm. Face whitish, with a faint tinge of olive-buff and with a few dark scales; vertex more mixed with light brown. Palpus quite moderate (scarcely $1\frac{1}{2}$), darkened on outerside. Body light drab, patagia mainly isabelline, abdomen above with more or less well-defined clay-coloured belts or spots, especially on the anterior segments. Legs with some scattered black dots and spots, the latter chiefly at ends of tibiae; hindtibia not dilated.

Forewing with costa straightish, well curved near apex, termen shallowly excised between apex and R^3, here angled, thence rather strongly oblique; drab (really perhaps pale vinaceous drab largely suffused with brown), rather variable, brownest in median area, or especially towards the postmedian line, warmer in the subcostal angle thereof and often rather conspicuously on some of the veins; some black-grey irroration; cell-dot small, black; traces of an incomplete blackish subbasal line; antemedian from $\frac{1}{5}$ or $\frac{1}{4}$ costa, blackish, overlaid with brown, excurved in anterior half, shortly incurved behind M, dentate outward at fold and (generally more weakly) at SM^2; a black-grey suffusion just proximal to antemedian; postmedian fine, double, proximally clay or cinnamon, distally yellowish white, oblique outward from costa near apex, angled outward (the tip of the angle rounded off) about SC^5, then oblique and slightly or scarcely wavy to about $\frac{2}{3}$ hindmargin; sometimes a black-grey line proximal to the postmedian and a more slender one distal to it; subterminal black-grey markings beginning near the postmedian, variable, the strongest and least inconstant being spots before and behind M^1 (commonly connected by a fine acute outward angle) and an amorphous oblique streak or spot running out posteriorly towards tornus; terminal line fine, blackish, often mixed with brown; fringe black, with large brown spots at the vein-ends.——*Hindwing* with termen subcrenulate, with a pronounced tooth at R^3; unmarked proximally to cell-dot; postmedian continued; distal area about as on forewing.

Underside similarly but rather less strongly marked.

♀ more vinaceous, the brown suffusions being obsolete or nearly so; antenna well pectinate, the longest branches about 3.

Madagascar: Station Perinet, 149 km. E. of Tananarivo, 20 October–10 November 1930 (Mme N. d'Olsoufieff), 15 ♂♂, 10 ♀♀ in Tring Mus.

A pretty species, near *dysonaria* Swinh. (1904), but more extreme in shape, etc.

18. **Microgonia vesulia antilliana** subsp.n.

Much more variable than the continental *v. vesulia* (Cram., 1779), but almost invariably of a warmer or deeper colour (cinnamon-buff or clay-colour—much as in *alternata* Warr., 1905—or more or less strongly suffused with some

shade of grey or vinaceous-drab, sometimes producing an olivaceous tone), such as is unknown in the name-type; the macular median clouding of forewing very rarely developed.

Jamaica (loc. typ.) and Cuba. In a fine series of 14 ♂♂ and 12 ♀♀ in coll. Tring Mus., only two examples (♀♀ from Jamaica) approach *v. vesulia* in coloration.

19. **Ectropis loxosira** sp.n.

♀, 24–25 mm. Face with lower edge white, the rest apparently mottled (partly abraded). Palpus fully 1½, heavily scaled, 3rd joint small, drooping; more or less infuscated, base whitish. Head and body whitish, with brown and fuscous irroration, abdomen dorsally with ill-defined alternations of dark and whitish. Legs partly darkened, with pale rings.

Forewing narrower than in typical *Ectropis*, costa very gently curved (only in the middle straight), termen rather strongly oblique, smooth, slightly curved; $SC^{1,2}$ shortly stalked, SC^2 in the type anastomosing slightly with $SC^{3,4}$; grey-white, with rather copious fuscous or blackish irroration, in places with a slightly browner suffusion; cell-dot scarcely noticeable in the type, distinct in the (lighter) paratype; antemedian double, oblique outward from hindmargin at 1–1·5 mm., bent subcostally and becoming blurred; median shade slender, anteriorly indefinite excepting a small costal spot opposite DC, posteriorly approaching the postmedian; postmedian strongly black at about ⅗ hindmargin, very oblique in direction of apex, as far as R^3 nearly straight and distinct, blackest on veins, then strongly retracted and becoming indefinite, but with a distinct black dot or dash on R^1; a similar or still more oblique streak from termen in cellule 6, thickening and almost meeting the postmedian in cellule 4, then bending to form a proximal blackish shade to the subterminal; subterminal somewhat sinuous, whitish, interrupted at the black streak, rather strong from R^3 hindward; terminal black interneural spots, connected by an extremely fine line; fringe pale, with dark spots opposite the veins.——*Hindwing* not very broad, termen waved, in middle crenulate; more weakly marked, at least anteriorly; cell-dot present; median line scarcely more proximal, incomplete, only strong at hindmargin; postmedian shortly beyond cell-dot, parallel with termen, anteriorly extremely slender, posteriorly thickening, throughout very finely whitish edged distally; subterminal slender, waved, with some dark shading proximally; termen and fringe as on forewing.

Underside dusky, especially the forewing; weakly marked except for the cell-dots; forewing with a small whitish apical spot; terminal line and fringe much as above.

Madagascar: Station Perinet, 149 km. E. of Tananarivo, 20 October–10 November 1930 (Mme N. d'Olsoufieff), type ♀ in coll. Tring Mus.; Mahatsinjo, near Tananarivo, paratype ♀ in coll. L. B. Prout.

As the genera in the *Boarmia* group are differentiated largely by ♂ characters, the position of this very distinct species is somewhat conjectural, but I suspect it is a narrower-winged outlier of the *E. sublutea* (Butl., 1880) group—cf. *Tr. Ent. Soc. Lond.* 1925, p. 314.

20. **Cleora amictozona** sp.n.

♂, 26 mm. Head and palpus pale, clouded with fuscous; palpus 1¾, 2nd joint with projecting scaling above, 3rd joint moderately stout, distinct. Antennal

pectinations moderately long, fairly erect, about as in *variegata* (Moore, 1867) (tips lost). Thorax and abdomen brownish mixed with ochreous, the abdomen above with some ill-defined dark clouding. Fore- and midleg partly infuscated, with pale spots at ends of joints ; hindleg paler, indefinitely dark-banded and clouded, the tibia rather strongly dilated with hair-pencil, the tarsus abbreviated (less than $\frac{1}{2}$).

Forewing with apex slightly more rounded than in the *variegata* group, fovea not quite so extreme, termen scarcely waved ; $SC^{1,2}$ very shortly stalked, SC^{1} anastomosing rather strongly with C ; from base to postmedian predominantly light wood-brown with some dark irroration, a conspicuous blackish cloud (perhaps individual) behind M and M^{2} from near fovea to near postmedian ; an ill-defined whitish band between median and postmedian, not reaching either margin ; lines black, incomplete, arising from equidistant costal spots ; ante- and postmedian expressed by rather large vein-dots, both weakly outbent before middle, median more strongly outbent outside the elongate cell-mark, becoming obsolescent posteriorly ; distal area whitish behind SM^{2} ; outside the postmedian a band of bright clay-colour (almost ochraceous-buff), dark-strigulated near costa, then pure to SM^{2} ; subterminal white, dentate, running inwards and more slender just in front of R^{3}, its accompanying shading almost as dark as in *variegata*, though less ample ; terminal area between wood-brown and clay-colour, irregularly dark-clouded in places ; terminal dots fairly large, connected by traces of a fine line ; fringe dark-spotted, especially from SC^{5} to R^{3} and at M^{2}.——*Hindwing* with termen weakly crenulate ; approximately concolorous with forewing, but less variegated ; proximal and anterior areas tinged with greyish ; abdominal region partly whitish ; cell-dot weaker than on forewing ; postmedian little beyond it, sinuous and punctiform, becoming strong and oblique distad behind SM^{2} ; the shade outside it weaker and slenderer than on forewing, separated from it by a pale line ; a narrow whitish posterior band between this and the dark shading of the subterminal, which shading is quite weak ; terminal dots nearly as strong as on forewing ; fringe scarcely spotted.

Both wings beneath more ochreous, spotted or strigulated at costa with blackish, the forewing also suffused as far as the median shade ; both wings with slightly elongate cell-spot, punctiform postmedian and dark terminal band, that of the forewing just over 2 mm. wide, leaving ill-defined pale terminal spots at apex and tornus and a strong one behind R^{3}, that of the hindwing weaker, only developed between costa and R^{3}.

Borneo : Butik Raja, above 2,200 m., 15–20 December 1924 (Sammelreise, Prof. Dr. E. Winkler), type in Zool. Mus. Hamburg.

Evidently an outlier of the *variegata* group, though smaller and differing in its clear band outside the postmedian, etc. I am describing a similar but apparently distinct (though very variable) *Cleora* from Mt. Kinabalu.

21. **Boarmia subpictilis** sp.n.

♂, 29 mm. Close to *squamosa* (Warr., 1896), which it presumably represents on Borneo. Smaller, the forewing relatively shorter, the termen being still less oblique than in *squamosa*. Darker (less brown) ; lines of forewing a trifle less oblique, the postmedian arising from a larger costal spot and less sinuate between R^{3} and M^{1} ; two conspicuous brown spots developed in the pale band between

postmedian and subterminal, one between R^1 and R^2, the other between M^2 and hindmargin, the latter also noticeable on hindwing ; subterminal lunules reduced, scarcely more than white dots, but with a characteristic enlargement of the dot between R^3 and M^1 on both wings. Underside heavily marked.

Borneo : Mehipit, *ca.* 500 m., 8–29 December 1924 (Prof. Dr. E. Winkler's Sammelreise), type in Zool. Mus. Hamburg.

In the unique type $SC^{1,2}$ are stalked to a little beyond the point of origin of SC^5, but this probably varies a little individually as in *squamosa*.

22. **Iridopsis brittonae** sp.n.

♂♀, 26–34 mm. Smaller than *obliquata* Dogn. (1904, Tucuman), hindtibia of ♂ more broadly dilated ; abdomen with stronger dark basal band. At least as variable as *obliquata*, a larger proportion—especially of the ♂♂—clouded with blackish, particularly in the median area ; median line not double, though often thick ; forewing with antemedian rather less oblique, rarely—and then only weakly—duplicated proximally, and with a pale midterminal patch, in dark specimens almost as conspicuous as in *I. ustifumosa* (Warr., 1897) ; hindwing with postmedian sharply angled at radial fold. Underside generally more strongly marked than in *obliquata*, the distal band of the forewing being more developed in the ♀, also appearing anteriorly (or sometimes throughout) on the hindwing of that sex and even showing faint traces in a few ♂♂ ; cell-spot of hindwing nearly always developed.

Argentina : La Soledad, Entre Rios, close to Uruguay frontier, a good series bred and captured by Miss E. A. Britton, including the type ; El Prado, 1 ♀ from the same collector ; Parana, 2 ♂♂ ; Villa Ana, Santa Fe (K. J. Hayward) ; all in coll. Tring Mus. Chaco de Santiago del Estero : Rio Salado, 1 ♂, 1 ♀ in coll. L. B. Prout.

Probably near *commixtata* Dogn. (1904), but smaller, the largest ♂ measuring not quite 33 mm., which would be 27 mm. by Dognin's calculation, whereas he gives 30 mm for his type ♂ ; distal area of forewing with more definite pale spot in middle, postmedian of hindwing with the angle at radial fold less produced, the inward curve between this and abdominal margin less deep ; underside more strongly marked.

23. **Iridopsis mossi** sp.n.

♂, 32–33 mm. ; ♀, 37–40 mm. Closely like small (or in the ♀ moderate) *pallescens* Warr. (1907), typically more suffused with brownish, though whitish forms also occur. Might have been taken for a race of that species but that the dilation of the ♂ hindtibia is less extreme and the tarsus less shortened—slightly over $\frac{1}{2}$, whereas in *pallescens* it is little over $\frac{1}{3}$.

Forewing perhaps a trifle narrower than in *pallescens* ; antemedian line a little less oblique ; cell-spot a little broader (particularly noticeable on underside) ; median line at hindmargin rarely so close to postmedian.——*Hindwing* with median line nearly always distinctly double.

Forewing beneath with the subapical band in the ♂ posteriorly cut off rather abruptly midway between R^1 and R^2, thus appearing merely as a rather broad curved border to the white apical spot ; in the ♀ fundamentally as in the ♂,

though a little broader, but in its *proximal* half with a weak continuation about to R^3.

W. Peru : the typical series of 3 ♂♂ and 5 ♀♀ (A. M. Moss) unfortunately not precisely localized, being merely labelled "Lima to Chanchamayo," but presumably from nearer to the former locality ; Barranco, near Lima (H. O. Forbes), 1 ♂, without antennae, otherwise good ; Callao (J. J. Walker), 2 ♂♂, 1 ♀ in coll. Brit. Mus., recorded by me (*Tr. Ent. Soc. Lond.* 1910, p. 340) as *fulvitincta*. Excepting the last-named three, all are in coll. Tring Mus.

In hindleg structure and in the double median line of hindwing *mossi* is nearer to the browner and more heavily spotted *obliquata* Dogn. (1904), which has the antemedian line more oblique, the subapical band beneath at least as extended as in *pallescens*, etc. I have ignored the name *fulvitincta* (Warr., 1897) to which I believe *pallescens* will sink, as the type has lost its hindlegs and confirmatory material from La Plata City is not known ; the rest of the synonymy given in *Tr. Ent. Soc. Lond.* 1910, p. 340, was inaccurate.

24. **Iridopsis tanymetra** sp.n.

♂, 43–48 mm. Near *nephotessares* Prout (1910), but more slenderly built. Hindtarsus nearly 1. Vertex and abdomen less mixed with white.

Forewing narrower than in *nephotessares*, the termen being more oblique and elongate ; more glossy, the colour-scheme slightly different, a suffusion of brownish invading parts of the median area, but leaving at least a large spot between SC^5 and R^2 from median line to postmedian clear white ; antemedian more oblique outward from hindmargin almost to SC, then sharply bent to run obliquely inward, thickened at both ends ; median irregularly double, anteriorly suffused, blurring the cell-spot and sending out broad shading at R^2–R^3 (densest on the veins) to join the postmedian ; postmedian thickened behind fold, running vertically (not obliquely outward) to hindmargin ; apical pale spot better defined than in *nephotessares*.——*Hindwing* with corresponding colour distinctions, but less variegated, the brown shade outside the postmedian faint, the dark distal shading restricted ; outline of cell-ring weak.

Forewing beneath with the dark apical patch more extended than in *nephotessares*, more definitely connected with the cell-spot between R^2 and M^1. Hindwing with postmedian vein-dashes well developed.

Colombia : Monte Tolima, 2,700 m., December 1909, type, and February 1910, 2 ♂♂ (A. H. Fassl) ; all in coll. Tring Mus.

25. **Iridopsis hypsinephes** sp.n.

♂, 52 mm. Ampler-winged than *nephotessares* Prout (1910), the forewing appreciably less oblique between apex and R^3, thus with a more definite change of direction (though no angle) at that point. Hindtarsus at least $\frac{3}{4}$. Body and wings above with cinnamon-drab to fawn suffusions.

Forewing with the brown shades which accompany ante- and postmedian lines almost as well developed as in *nephotessares*, but much less conspicuous on the less white ground ; lines not (as in *tanymetra*) thickened at hindmargin ; antemedian not quite so oblique as in that species, very acutely angled just behind SC to run very obliquely inward to a blackish costal spot ; median line double, brown, only the inner mixed with black, the outer lost in a weak brown

postmedian suffusion between R^2 and R^3, the inner (anteriorly to the very ill-defined white-grey cell-spot) in a thick, slightly oblique costal streak ; postmedian much as in *nephotessares*, but somewhat less thickened between R^2 and base of M^1 and with a slight outward curve (instead of oblique outward course) between SM^2 and hindmargin ; a small white streak in front of R^2 from median to postmedian ; subterminal fairly regular, not or scarcely interrupted ; terminal dots slight.——*Hindwing* whitish at base, otherwise concolorous with forewing ; further distinguished by having the median line double, black-mixed posteriorly, a further (but weaker) line between these and postmedian, postmedian scarcely bent at radial fold, posteriorly blackened, subterminal more regular than in *nephotessares*.

Forewing beneath more blurred and suffused than in *nephotessares* ; hindwing, in addition to the cell-mark, with the lines of the upperside indicated, or at least the postmedian.

Colombia : Monte Tolima, 3,500 m., February 1910 (A. H. Fassl), type in coll. Tring Mus. A less large ♂ (46 mm.), somewhat worn but unmistakable, from the same mountain at 2,800 m.

The shape, tone, absence of gloss, etc., render any confusion with the preceding species impossible.

26. **Iridopsis eutiches** sp.n.

♂, 30 mm. Face above dark fuscous, below (rather less than ½) very pale brownish. Antennal pectinations short (about 2) and ceasing scarcely beyond middle of shaft, much as in *validaria* (Guen., 1858).

Forewing shaped about as in *validaria* ; the semihyaline whitish ground-colour much more suffused with brown, nearly as in *transvisata* Warr. (1906) ; cell-spot oblong, blackish, not ocellated, extending the length of $DC^{2\cdot3}$, scarcely half as broad as long ; lines arising from three equidistant costal spots ; antemedian more regularly curved throughout than in *validaria* ; median chiefly developed posteriorly, where it is broad, band-like and touches the postmedian ; postmedian marked by dots (minute dashes) on the veins, excurved between costa and R^3, then incurved, with a slight dash outward on SM^2 ; dark border about 3 mm. wide, enclosing no pale spot at apex, a rather small and weak one in middle and only faint traces of the pale subterminal and of a blacker shade just proximal thereto ; terminal dark dots inconspicuous ; fringe scarcely pale-mixed, except opposite the midterminal spot.——*Hindwing* with termen rounded, hardly waved ; dark mark close to base slighter than in *validaria* ; cell-mark about as on forewing, crossed by the almost straight median shade ; postmedian dots curved parallel with termen, very small except on M^2, SM^2 and hindmargin ; border and fringe almost as on forewing, the pale midterminal spot still slighter, a dark proximal-subterminal spot on the radial fold more appreciable.

Underside similar.

Fonte Boa, Amazons, August 1906 (S. M. Klages), 1 ♂ in Tring Mus.

The distinctions from *validaria*, as noted above, seem to be too numerous and important to allow of our regarding *eutiches* as a form of that well-known species. In any case, it is not a geographical modification, as typical, fully-sized *validaria* were taken with it at Fonte Boa.

27. **Iridopsis syrniaria** (Guen.).

Tephrosia syrniaria Guen., *Spec. Gén. Lép.* ix. 262 (1858) (Brazil).
Boarmia subferraria Walk. (part.), *List Lep. Ins.* xxi, 359 (1860) (Brazil) (specim. typ., Venezuela [Tams sel.] div. erat sp.).
Boarmia subapicata Walk., *List Lep. Ins.* xxvi, 1534 (1862) (Brazil).

Before describing the extraordinarily interesting species which follow (Nos. 28–33), it is necessary to say something about the legitimate owner of the above much-abused name. Guenée's description is good, and the true *syrniaria* —only known to me from Brazil (Rio district to Santa Catharina)—has always been correctly identified, but unfortunately at least seven other species have been constantly, or almost constantly, confused with it, six of them very excusably, the other less excusably. The last-mentioned may be dismissed first, as it is really outside the scope of the present study, belonging properly to the *chalcea* (Oberth.) group.[1]

In true *syrniaria*, which has a more brownish hue than most of the following, the valve has a short, though sharply pointed, subtriangular projection at the end of the sacculus, a boot-shaped costal projection (the toe at apex), uncus short, weak and blunt.

28. **Iridopsis scolancala** sp.n.

♂, 40–44 mm. About as dark as the ♂ of *syrniaria*, of which, before I examined the genitalia, I was inclined to suppose it a race ; on an average slightly duller and more uniform, the brown tinge slightly more suffused with grey, the white parts (adjoining ante- and postmedian lines in median area, also at base of hindwing), generally including the subterminal line, less clearly differentiated, the warm shades which accompany the ante- and postmedian on their reverse sides on the whole less bright ; postmedian of forewing with black dashes little developed, except from costa to R^2, in consequence generally weak ; cell-spots on an average large.

♂ valve without sacculus-arm, the ventral edge sinuous, oblique, but continuing to run caudad until reaching the costal arm (not, as in the *rupertata* group, sufficiently curved to rise vertically, or even return somewhat cephalad) ; costal arm strong, sharply bent downward and inward near its base, then forming a rather long prong whose point crosses that of the opposite valve, much as in *rupertata* (Feld., 1875), but bearing at its bend a very characteristic thorn on its upper- and innerside.

Colombia : Popayan (Lehmann), 18 ♂♂, including the type ; Coreato, Cauca (Paine & Brinkley), 1 ♂ ; all in Tring Mus.

[1] The specimen figured by Oberthür (*Et. Ent.* vii, t. i, f. 8, 1883) as *syrniaria* is from Muzo, Colombia, as is shown by the archetype in his collection, and belongs to a very widely distributed species (Central America to Bolivia, Paraguay and Santa Catharina) with very similar underside to *syrniaria* (vera) but relatively longer winged, on an average larger, more glossy whitish, the cell-spots generally white-centred, that of the hindwing often very slight, the lines in part weak, the double median of the forewing generally forming with the postmedian at the hindmargin a trio of fine, virtually equidistant dark lines, the postmedian of the hindwing in general more sharply angled outward between the radials ; ♂ valve divided into a long, curved, subascending, highly chitinized sacculus-arm and a strong costal arm with a highly chitinized knob at tip, from which projects inward (i.e. so that it and its opposite meet) a slender pointed spine. I call this insect provisionally : **I. oberthüri** nom.n. (= *syrniaria* part., Oberth., *nec* Guen.) with the figured specimen as type ; I suspect, however, that it may prove a form of *submarginata* Warr. (1907), from which I cannot yet distinguish it by the genitalia, though the remarkable difference in the ♂ underside would seriously undermine the faith that is usually placed in the specific stability of *Iridopsis* undersides.

29. **Iridopsis haploancala** sp.n.

♂, 40–43 mm. More variegated and more sharply marked than the preceding, in almost every respect still more exactly resembling small *syrniaria*; postmedian line of forewing less incurved at fold (sometimes not incurved), behind SM^2 about perpendicular instead of oblique outward; this line also with a slightly stronger outward projection than is usual in *syrniaria* and *scolancala* (but not quite constant in any of the three).

♂ valve much simpler than in either of the preceding; no sacculus-arm; "costal arm" considerably shorter than in *scolancala*, merely a short, incurved and slightly downcurved, pointed prong formed at the union of the sinuous dorsal and ventral edges of the valve. The points of the opposing prongs meet, or nearly meet, in their normal position, but do not cross as in *scolancala*.

Colombia: Cañon del Tolima (A. H. Fassl), 1,700 m., 5 ♂♂, including the type; 2,500 m., 1 ♂; all in Tring Mus.

30. **Iridopsis aviceps** sp.n.

♂♀, 40–44 mm. Both sexes whiter than the ♂ of *syrniaria*, otherwise scarcely distinguishable superficially; cell-spot of forewing generally (in *syrniaria* rarely) with some white scaling on DC, that of hindwing rarely as reduced as is frequent in *syrniaria*; median lines of hindwing on an average more distally placed, so that the outer of them not rarely touches the cell-spot (but variable in both species); presubterminal spot between radials of the hindwing scarcely ever (in *syrniaria* commonly) darker than the others.

♂ valve with a more differentiated, broader, more bent sacculus-arm, a deep emargination between this and the costal process, which takes the form of a bird's head and neck, the beak pointing downwards, the crown rather high, the innerside beset with stiff hair and fine spines which seem to interlock with the opposite series. Uncus represented (or replaced) by a bifid "scaphium" which descends almost to the plane of the anal cone, its arms then running curved at either side thereof.

Mexico to Panama, the type ♂ from Cachi, Costa Rica, 3,300 feet, 20 September–14 October 1912 (C. H. Lankester) in Tring Mus.

A few specimens from Colombia (Candinamarca, Muzo, etc.) are on an average rather large and strongly marked and perhaps have the "bird's head" of the ♂ valve a little narrower, but without ampler material I will not separate them racially.

31. **Iridopsis panopla** sp.n.

♂♀, 40–47 mm. Variable in size, but on an average rather larger than *aviceps*, from which I can find no constant distinction in markings.

♂ valve strongly chitinized round its entire posterior edge, a rather long sacculus-arm projecting downwards and inwards, the costal process with four strong spikes projecting inwards to interlock with their opposites, the effect—when unopened and viewed from behind—being as of an unbroken ring of chitin. Uncus represented by a similar development to that of *aviceps*.

E. Peru to E. Bolivia, the type from La Oroya, Rio Inambari, S.E. Peru, in Tring Mus.

32. **Iridopsis acieifera** sp.n.

♂♀, 40–42 mm. Extremely similar to the two preceding, but with the forewing relatively a trifle more elongate, the termen being rather longer and more oblique ; brown tinge generally more noticeable than in them, though a good deal less pronounced than in *syrniaria* ; cell-spot of forewing rather large, dark grey, much as in *syrniaria*, of hindwing rather long, crescentic, finely outlined ; lines fine, pretty continuous, the postmedian less coarsely dotted on the veins than in most *syrniaria*.

♂ valve broad, strong, without differentiated sacculus ; ventral edge as it begins to curve upward showing a small notch, then with a strongly chitinized patch, which is conspicuous by its irregularly dentate edge (quite noticeable from the outside when the hairs and scales have been removed), the dorsal edge (costa) ending in a curving spine, a similar but longer spine more proximally, inclining inward ; uncus vestigial.

Venezuela : Merida, a short series in Tring Mus., including the type ; a few ♂♂ in other collections.

33. **Iridopsis appetens** sp.n.

♂♀, 38–42 mm. Shape as in *aviceps* and *panoplia*, or with the costa of forewing perhaps a trifle more rounded towards the apex ; on an average slightly more brownish than they, decidedly more strongly marked than *acieifera* ; cell-spots about as in *syrniaria*, that of hindwing quite frequently fairly large and well darkened.

♂ valve about as strong as in *acieifera*, fairly broad proximally, its ventral edge then sharply curved upward, leading to the distal armature of costa, which consists of a strong curved prong of chitin ; this does not taper to a spine as in *haploancala*, but, on meeting its opposing prong, has a blunt, somewhat denticulate edge, at the dorsal extremity of which there is a small point projecting upward. Uncus represented by a " scaphium " much as in *aviceps* and *panoplia* but with the prongs at its end more divaricating, gracefully curved.

W. Ecuador : Paramba (a series, including the type ♂), Chimbo, Lita, Balzapampa ; type in Tring Mus.

Although the above seven *Iridopsis* do not seem to overlap in range, the differences in the genitalia are so wide that they have obviously passed beyond the status of subspecies.

34. **Synecta ulothrix** sp.n.

♂♀, 35–36 mm. Head whitish, the face and palpus dark-mixed, in the ♀ very strongly ; palpus little over 1 ; vertex and collar tinged with chamois, especially in the ♀. Antennal pectinations in ♂ moderate, in ♀ short. Thorax and abdomen whitish, especially in the ♂ ; a basal abdominal chamois belt above ; abdomen in ♂ elongate, with anal tufts chamois ; in ♀ beneath honey-yellow posteriorly, deepest and brightest at tip. Hindtibia in ♂ long, very strongly dilated, with dense chamois-tinged pencil, tarsus very short.

Forewing with $SC^{1,2}$ coincident, in the ♂♂ connected with $SC^{3,4}$, R^2 connate with R^1 or only very shortly stalked ; fovea in the ♀ very slight ; white (♂) or palest grey (♀), with moderate (in the ♂ slighter) drab irroration ; cell-dot black ; lines drab or rather browner, forming dark-mixed spots at costa ; a blurred subbasal ; antemedian from about ¼ costa, curved in cell to become very oblique

inward, sometimes weak; median outbent round cell-dot, then sinuous to less than ½ hindmargin (♀) or from fold almost to hindmargin more oblique outward (♂); postmedian from about ⅔ costa, more dentate, with an indentation in front of the (slight) outward curve at the radials, oblique inward to fold, dentate outward on SM^2, in the ♂ posteriorly inclined to follow the median in its outward course; a more macular line or shade beyond the postmedian; proximal subterminal macular, rather variable, generally incomplete, strongest costally, between the radials and posteriorly; distal shading indicated chiefly by dashes before and behind R^2 and M^2; fringe spotted at vein-ends.——*Hindwing* in ♀ normally shaped, in ♂ with anal region enormously produced and somewhat contorted, forming a large flap beneath, which is clothed with fine, long, somewhat curved chamois hair; in ♂ white, very feebly marked, chiefly at abdominal margin; in ♀ concolorous with forewing and continuing its essential pattern, except subbasal and antemedian lines.

Underside of ♂ white, the forewing with indications of the markings of upperside and a weak terminal (subterminal) band, tapering and not reaching tornus; of ♀ heavily suffused with grey, which darkens to a broad but ill-defined terminal band, and with the lines and cell-spots of the upperside also reproduced in dark grey, the forewing with small pale apical and midterminal spots, the fringes white, with dark vein-spots.

W. Ecuador: Guayaquil (v. Buchwald), 2 ♂♂, 3 ♀♀ in coll. Tring Mus.

A remarkable species, which by the ♂ specializations might be considered to form a new genus, though the ♀ shows quite obvious affinity with *Synecta* Warr.

35. **Milionia rawakensis metazosta** subsp.n.

Forewing with band considerably broader than in most *r. rawakensis* (Godt., 1825), generally 5–6 mm., orange, very rarely (perhaps in 12–15 per cent.) suffused with red, apparently never of the clear red of *r. rawakensis* ab. *flammula* Voll. (1863); the preceding black area strongly tapering, at hindmargin generally obsolete, interrupted or extremely slender.——*Hindwing* with terminal band narrowed, approaching that of *r. woodlarkiana* Rothsch. (1896), usually 4 or at most 5 mm., the black spots nearly always small, well separated, the apical slight or obsolete, scarcely ever connected with the proximal black area by any costal streak.

British New Guinea: Mambare River, Holnicote Bay to Owen Stanley Range, Hydrographer Mountains, Milne Bay, etc.; the type ♂ from Lower Mambare River, May 1906 (A. S. Meek), in Tring Mus. Also from Rawlinson Mountains, Mandated New Guinea, in the same collection.

Notwithstanding the great variability of *rawakensis* everywhere, including Milne Bay, which has necessitated some reservations in the above description, the general difference between this and name-typical *rawakensis*, from Waigeu and Dutch New Guinea, is very striking.

36. **Milionia rawakensis tagulensis** subsp.n.

Forewing with the orange band still broader than in *r. metazosta* (in large specimens 7 or 8 mm.), the preceding black streak similar.——*Hindwing* variable, but with the orange band always broad, generally extremely so, often occupying about one-half the wing, or even more; the black vein-spots, especially the

anterior ones, elongate, often forming long wedges, all isolated, or those on SC^2 and R^1 somewhat confluent in their middle, the spot at apex generally minute or wanting, a narrow costal streak from black basal area towards apex, on the other hand, often developed.

Louisiades: Sudest Island (Eichhorn bros.), 6 ♂♂, 3 ♀♀ in Tring Mus.

37. **Craspedosis triangularis** Prout.

Craspedosis casta triangularis Prout, *Nov. Zool.* xxiii. 71 (1916) (Mount Goliath).

I do not now think this is a race of *casta* Warr. (*infra*), though the bare possibility is not yet morphologically ruled out. A race (?), with the white more extended, on the forewing reaching DC^1 and base of R^1 and rather less pointed anteriorly—2 ♀♀, near Oetakwa River, Snow Mountains, up to 3,500 feet—may probably prove worthy of a name on more adequate material.

38. **Craspedosis casta** Warr. (1903).

Warren's type, from Upper Aroa River, remains unique. In addition to the distinctions given in the key below, it differs in the much less curved boundary of the white areas; the comparative straightness of that of the forewing would result in a very definitely triangular form but for a slight encroachment of the apical black in front of R^1 almost to its base.

39. **Craspedosis curvilimes** sp.n.

♀, 44–51 mm. Head and thorax black, the latter above becoming marguerite-yellow posteriorly, thence shading through a yellower colour to the orange of the abdomen; abdomen above and beneath predominantly orange, almost always with a black spot behind the tympanal orifice. Legs blackish.

Forewing yellowish white (much whiter than marguerite-yellow); black border from base of costa broadening to about 3 mm., tapering after crossing M, but more or less strongly round-edged anteriorly and distally, at R^3 and hindward about 3 mm. wide; its inner and proximal edges very narrowly grey rather than black.——*Hindwing* concolorous, with the black border well curved proximally, broad, varying from 6 or 7 to 4 or 5 mm. (proportionally rather less in the smallest specimens).

Underside the same, except that the grey edgings to the black borders of the forewing in part (behind SC proximally and again behind R^3 or M^1 in increasing width to the hindmargin) are increased.

British New Guinea: Hydrographer Mountains, 2,500 feet, January–May 1918 (Eichhorn bros.), 8 ♀♀, including the type; Dutch New Guinea, Snow Mountains: near Oetakwa River, 2 ♀♀, Upper Setekwa River, 1 ♀; all in Tring Mus.

In the Hydrographer Mountains series there is a remarkable dimorphism which nearly betrayed me into assuming two species. Four have broad black abdominal belts, but on an average appreciably less broad black borders than the type; but I find that one of the remaining four has strong belts ventrally, without a trace of them dorsally, and has the borders about as in some of the fully belted examples. Two of the four belted specimens have, further, a fine white terminal streak on forewing from apex, tapering to vanishing point behind M^1.

A ♂ from Rawlinson Mountains, inland of Huon Gulf (Keysser), has not been made the type, because it may represent a different race: 46 mm.; abdominal belts above strong, as in the Hydrographer ♀-ab., beneath slighter; borders very broad, on forewing from apex to R^3 10 mm., on hindwing at R^1 over 6 mm., at R^3 over 5 mm.

The three species of the *casta* group may be briefly differentiated as follows:

1. Yellow-white, base of hindwing concolorous . . . 2
   White, not yellow-tinged, base of hindwing black . . *triangularis* Prout.
2. Proximal black of forewing narrow, scarcely entering cell; abdominal margin of hindwing buff . . *casta* Warr.
   Proximal black of forewing broad, filling base of cell; abdominal margin of hindwing not buff . . . *curvilimes* sp.n.

40. **Craspedosis chrysopyga** sp.n.

♂, 36–42 mm. Near *uniplaga* Warr. (1896), possibly a race, though the antennal ciliation is a trifle longer (over 1, in *uniplaga* apparently just 1) and the terminal joint of the palpus, though short, may be slightly better developed than in that species. Head and body black, but the 6th–8th segments of the abdomen (at least beneath; above sometimes only the 7th–8th) orange-buff to eapucine-yellow.

Forewing black, with rather shorter white patch than in *uniplaga*, extending from R^1 to fold, or not quite to fold, typically narrow, at its widest (central) part not more than 2 mm. wide, in these forms, as in *uniplaga*, just outside the cell, in an aberration (two specimens) widening to just over 3 mm. and entering the cell.——*Hindwing* with the white patch more as in *u. angustiplaga* Prout (1924), somewhat variable, a rather pointed anterior end crossing, or at least reaching, the base of SC^2, a broader posterior one behind cell, its distal end bluntly produced (rounded), culminating on M^1.

Underside similar, the white patches somewhat extended by grey shading.

New Ireland, November 1923–February 1924 (A. F. Eichhorn), 6 ♂♂ in Tring Mus.

As **C. c. ampliplaga** subsp.n. I describe 2 ♂♂ from Talasea, New Britain, February–April 1925 (A. F. Eichhorn). The orange of abdomen restricted, both above and beneath (hardly more than the 8th segment and the hair of anal end). White spots larger, that of forewing widening to 4 or 5 mm. at M–R^3 and M^1, well rounded behind (broad pear-shaped), that of hindwing about 6 mm. at both its longest diameters.

41. **Craspedosis stenotera** sp.n.

♂, 45 mm.; ♀, 50 mm. Closely related to *swinhoei* Rothsch. (1915) but with abdomen unicolorous, without a trace of the orange uppersides of that species. Wings slightly narrower, rather more strongly marked, the pale line of the hindwing above and beneath, especially in the ♂, running to hindmargin close to tornus.

Dutch New Guinea, Snow Mountains: Upper Setekwa River, 2,000–3,000 feet, July 1910, type ♂; near Oetakwa River, up to 3,500 feet, October–December 1910, allotype ♀; both in Tring Mus., received from A. S. Meek.

I had, without special attention, placed these with *semilugens* Warr. (1896), from which they differ not only in their narrower and darker wings but also in the broader retinaculum of the ♂ and the stronger fovea of the ♀.

42. **Craspedosis exotasis** sp.n.

♂♀, 35–42 mm. Intermediate between *nigerrima* Warr. (1903) and *picaria* Warr. (1897, as *Stenocharta*), probably nearer to the former; distinguishable at once from *picaria* by having no white on the face and collar, as well as by its smaller size and slightly less slender build; from *nigerrima* by having the forecoxa of the ♂ snow-white instead of dirty grey-whitish; from both (but especially from *nigerrima*) by the very strong fovea of the ♂.

Forewing with the oblique white mark apparently much less variable than in *nigerrima*, in all the known examples 1·5–2 mm. wide on upperside, a little wider beneath.——*Hindwing* with the white patch ample, on an average longer than in *nigerrima* and less rounded than in *picaria*, the side opposite the abdominal margin being somewhat flattened as in the former, the distal end more produced between the folds than is usual in either of the allies.

Goodenough Island, 2,500–4,000 feet, 3 ♂♂, 3 ♀♀, including the type; Hydrographer Mountains, 2,500 feet, 1 ♂; Booboomie, Aroa River, 1 ♂, 2 ♀♀; all in Tring Mus.

43. **Hylemeridia eurema editorum** subsp.n.

Forewing with costal edge in ♂ black as far as C and colouring the retinaculum, in ♀ also black, though very narrowly; terminal black border reduced, in the ♂ leaving proximal part of cellule 3 white, in the ♀ quite narrow, curved. Hindwing with the apical black spot long and narrow, forming a half-band from before C to behind R^1.

Katanga: Kafakumba, ♂ type and a ♀; River Kutete, 1 ♀; all in Tring Mus. A ♀ from Ituri River (T. A. Barns), which I cannot now compare, also evidently belongs here.

Notwithstanding that the variability of *eurema* (Plötz, 1880) = *dexithea* (Druce, 1887) = *eurymelanotes* Prout (1915), from the coastlands of W. Africa, can give rise to the breakdown of one or another of the above-given distinctions in individual cases (excepting, I think, the black costal edge of the ♀), there seems no doubt that this is a good race.

Nothylemera gen.n.

Face with moderately appressed scales. Palpus moderate, upcurved, shortly scaled, terminal joint distinct. Tongue developed. Antenna bipectinate to near apex. Pectus scarcely hairy. Femora glabrous. Hindtibia with terminal spurs only.——*Forewing* elongate, apex moderate, termen smooth, curved, oblique; no fovea; cell almost $\frac{3}{5}$, DC^1 and DC^4 fairly long, somewhat convergent distally, $DC^{2\cdot3}$ fairly straight, SC^1 shortly stalked with SC^2, anastomosing slightly or connected with C, R^2 about central.——*Hindwing* elongate anteriorly, termen moderately rounded, smooth; cell well over $\frac{1}{2}$, DC normal, C approximated to SC in second fourth and to slightly beyond middle, then rapidly diverging, SC^2 from near R^1, M^1 rather remote at origin from R^3.

Type of the genus: *Nothylemera vinolibata* sp.n.

Differs from *Hylemera* and all other African genera of the group (*Braccinae* of Warren) in the lack of the proximal spurs of the hindtibia.

44. **Nothylemera vinolibata** sp.n.

♂, 27 mm. Head, with palpus and antennal shaft, orange; pectinations blackish. Thorax in part orange, then duller, a rather large vinaceous posterior

spot, tegula anteriorly vinaceous ; abdomen orange, very slightly dulled with grey.

Wings orange-buff.——*Forewing* above with the ground-colour only showing along costa (to near apex) and in a narrow area towards middle ; proximal area broadly suffused with vinaceous, anteriorly and on the veins a little brighter ; a slightly excurved blackish line from midcosta to about $\frac{3}{5}$ hindmargin, with minute teeth inward on M, M^2 and SM^2 ; colour beyond this vinaceous-brown, on the veins rather greyer ; fringe dark grey proximally, whitish buff distally.——*Hindwing* with a vinaceous-brown distal border, which measures 1·5 mm. anteriorly, reducing to 1 mm. posteriorly ; fringe as on forewing.

Underside similar, but with the proximal suffusion of forewing fainter and duller.

Katanga : Kimpuki, Kafakuma dist., 2 April 1925, type ♂ in coll. Tring Mus. ; 150–200 miles W. of Kambove, 3,500–4,500 feet (S. A. Neave), 1 ♂ in coll. Brit. Mus.

This may well prove a race of " *Hylemera* " *neaera* Druce (1887), founded on a single ♀ from " Cameroons," which species in any case belongs to *Nothylemera* ; the great difference in the border of the hindwing is probably in part sexual. But as I am making the new form a genotype, it avoids complication to erect it provisionally as a species.

45. **Lomographa synclines** sp.n.

♂, 17–18 mm. Head light brown ; face, palpus and occiput dark-mixed. Thorax and abdomen concolorous with wings, the abdomen above with the ochraceous-tawny colour strong, enclosing pale mediodorsal spots. Foreleg infuscated on upper- and innerside.

Forewing rather broad, apex round-pointed, termen for some distance almost straight, then curving to become more oblique ; $SC^{1,2}$ free ; whitish buff, coarsely and profusely irrorated with ochraceous-tawny, the irroration partly confluent in such wise as to suggest minute reticulation ; a dark costal line, in proximal area broadening to a small basal patch ; antemedian line rather heavy, especially anteriorly, the tawny element slightly dark-mixed, from beyond $\frac{1}{3}$ costa to near middle of hindmargin ; postmedian broad, strongly dark-mixed, from scarcely beyond $\frac{2}{3}$ costa, gently excurved, gradually approaching a similarly coloured terminal line, which it meets at tornus ; slight suffusion in distal area about the radials and near tornus, indicating the characteristic pattern of *Lomographa* sect. *Heterostegane* ; fringe dark-spotted.—*Hindwing* with C anastomosing very slightly, M^1 well separate ; concolorous with forewing ; a minute cell-dot, closely followed by a fine and weak curved median line ; a narrow dark terminal band (1 mm.), intenser in its proximal than in its distal half.

Underside pale, with slight suffusions but without irroration ; the markings all dark plumbeous, consequently all of nearly equal intensity ; proximal area of forewing largely darkened.

Madagascar : Station Perinet, 149 km. E. of Tananarivo, 20 October–10 November 1930 (Mme N. d'Olsoufieff), 3 ♂♂ in coll. Tring Mus.

Will certainly belong to the section *Heterostegane* (♂ antenna ciliated), not far from *monilifera* Prout (1915).

ORNITHOLOGISCHE ERGEBNISSE DER EXPEDITION STEIN 1931–32.

I. DIE VÖGEL VON WAIGEU.

Bearbeitet von LORD ROTHSCHILD (Paradisaeidae, Psittaci, Ralli), ERWIN STRESEMANN und KNUD PALUDAN (Einleitung und die übrigen Gruppen).

EINLEITUNG.

WAIGEU, die grösste unter den westlichen papuanischen Inseln, besitzt in den beiden Paradiesvögeln *Paradisaea* („*Uranornis*") *rubra* und *Schlegelia respublica* zwei höchst auffällige Endemismen, welche die besondere Aufmerksamkeit der Ornithologen schon frühzeitig auf dies Eiland gezogen haben.

ZUR ERFORSCHUNGSGESCHICHTE.

Quoy & Gaimard (1818). Die ersten Zoologen, welche der Insel einen Besuch abstatteten, waren (wenn man von dem kurzen Aufenthalt Labillardières im August 1793 absieht) die beiden Franzosen J. R. C. Quoy und J. P. Gaimard. Die Corvette "Uranie," an deren Weltreise sie als Naturforscher teilnahmen, landete am 16. Dezember 1818 auf dem dicht vor der Waigeuküste gelegenen Inselchen Lawak = Rawak, und von dort aus wurden bis zum 6. Januar 1819 Bootsfahrten nach der Küste der Hauptinsel und einigen ihr nördlich und nordwestlich vorgelagerten Inselchen unternommen [Nova Guinea I: A. Wichmann, *Entdeckungsgeschichte von Neu-Guinea* (bis 1828), pp. 303–306]. Hierbei wurden *Sauromarptis gaudichaud* und *Megapodius freycinet* entdeckt; jener erhielt seinen Namen zu Ehren des Botanikers, dieser zu Ehren des Kommandanten der "Uranie." Weiterhin wurde der Typus von *Ducula pinon* gesammelt, benannt nach Madame de Freycinet, einer geborenen Pinon.

Lesson & Garnot (1823). Fünf Jahre später erhielt die Insel abermals den Besuch einer französischen Forschungsexpedition: Die Corvette "La Coquille" warf am 6. Sept. 1823 an der Nordküste von Waigeu in der Fofakbai den Anker, um 10 Tage später weiterzusegeln. An Bord befanden sich die Zoologen R. P. Lesson und P. Garnot. Auch sie sammelten während des kurzen Aufenthalts einige Vögel, von denen ausser *Paradisaea rubra*, dessen Heimat dis dahin unbekannt geblieben war, noch der Typus von *Myzomela eques* Erwähnung verdient.

Wallace (1860). Bei diesen sehr spärlichen Nachrichten über die Vogelwelt Waigeus blieb es, bis Alfred Russell Wallace, der grosse zoologische Pionier Niederländisch Indiens, auf der Insel landete. Er nahm vom 4. Juli bis 29. Sept. 1860 sein Standquartier in Muka, einer an der Südküste gelegenen Ortschaft, und unternahm von da aus einen Abstecher nach dem Dorfe Besir auf der Nachbarinsel Gemien [A. R. Wallace, *Der Malayische Archipel*, Braunschweig 1878, ii, pp. 324–341]. Ihm glückte es, die Zahl der von Waigeu bekannten Vogelarten auf eine ansehnliche Höhe zu bringen, und aus seiner Ausbeute beschrieb G. R. Gray *Ptilotis sonoroides*, *Ptilotis polygramma*, *Rectes cerviniventris*,

Rectes leucorhynchus, *Myiolestes affinis*, *Gerygone neglecta*, *Machaerirhynchus albifrons*, *Henicophaps albifrons*.

Bernstein (1863). Aufs beste für seine Aufgabe vorbereitet, erreichte der für die Ornithologie begeisterte Arzt und Zoologe Dr. Heinrich Agathon Bernstein, ein gebürtiger Breslauer, die Insel Waigeu am 1. März 1863 und richtete sich zu längerem Aufenthalte im Dorfe Umka ein, am Ostausgang der Strasse von Gemien gelegen. Ihm wurde die Freude zuteil, die Heimat des schönen Paradiesvogels *Schlegelia respublica* zu entdecken, der zuerst von Bonaparte als *Lophorina respublica* und Heinige Monate später nach einem Balg ohne Fundort von Cassin als *Paradisea wilsoni* beschrieben worden war. Aus seiner reichhaltigen Ausbeute, die ans Leidener Museum gelangte, beschrieb er im *Journal für Ornithologie* 1864, pp. 401–408 *Arachnothera vagans* (= *Melilestes megarhynchus vagans*), *Zosterops fusca* (= *Gerygone magnirostris cobana*), *Corvus megarhynchus* (= *Macrocorax fuscicapillus megarhynchus*) und fügte, wie dies seine Art war, treffende Bemerkungen über die Lebensweise hinzu. Leider waltete ein Unstern über dieser Expedition; Bernsteins Leute erkrankten und starben zum Teil, ja schliesslich warfen die Anstrengungen der Suche nach *Schlegelia* den Forscher selbst aufs Krankenlager, und er musste am 6. Mai die Rückfahrt nach Ternate antreten! [1]

Beccari (1875). Der bekannte italienische Forschungsreisende Odoardo Beccari stattete Waigeu zweimal einen kurzen Besuch ab; und zwar weilte er vom 6.–14. März 1875 in Nakre an der Südost-Spitze und im März 1876 einen Tag bei Saonek (Odoardo Beccari, *Nuova Guinea, Selebes e Molucche*, Firenze 1924).

Guillemard (1883). Als Naturforscher der Marchesa-Expedition besuchte der Engländer F. H. H. Guillemard die Insel Waigeu vom 24. bis 31. Oktober 1883, wobei er vor allem am grossen Fjord und bei Momos (an dessen Mündung gelegen) sammelte. Seine Ausbeute gelangte grösstenteils ins Tring-Museum (Guillemard, *The Cruise of the "Marchesa,"* 2. ed. London 1889).

Platen (1883–84). Kurz danach hielt sich der deutsche Forschungsreisende Dr. Carl Platen einige Monate (von Nov. 1883–Febr. 1884) auf Waigeu auf; er erkrankte hier und wurde zur Umkehr gezwungen, nachdem er 656 Vogelbälge gesammelt hatte, die in den Besitz des Eiersammlers Amtsrat Nehrkorn übergingen und sich jetzt grösstenteils in den Museen zu Braunschweig und Berlin befinden. Nehrkorn veröffentliche eine sehr fehlerhafte Liste im *J. f. O.* 1885, pp. 30–35. Dr. Platen glückte es, eine Reihe von Arten der Liste der Waigeu-Vögel hinzuzufügen. Aus seiner Ausbeute konnten *Edolisoma tenuirostre nehrkorni* und *Ptilinopus nanus minimus* beschrieben werden; beide sind von keinem anderen Reisenden auf Waigeu erbeutet worden.

Bruijn (1875–ca. 1885). Der Federhändler A. A. Bruijn in Ternate liess durch seine gutgeschulten eingeborenen Jäger, wie in vielen anderen Gebieten der Molukken und Papuasiens, so auch auf Waigeu für europäische Museen Vogelbälge sammeln; sie gingen anfänglich zumeist an Graf Salvadori, später auch an andere Ornithologen, wie E. Oustalet und W. Rothschild. Aus diesen Sammlungen stammen alle bisher bekannt gewordenen Exemplare des interessanten Grossfusshuhnes *Aepypodius bruijni*.

Waterstradt (1902). Im Auftrag des Tring Museums sammelte der Däne Johannes Waterstradt im Jahre 1902 eine unbedeutende Anzahl von Vogelbälgen auf Waigeu.

[1] Finsch u. v. Martens, *J. f. O.* 1866, pp. 130–143.

Stein (1931). Obwohl sich der Aufenthalt des Herrn Georg Stein und seiner Gattin auf Waigeu nur vom 6. Mai bis 16. Juni erstreckte, ist seine Sammlung doch vollständiger als die irgend eines seiner Vorgänger, und es gelang ihm, der Liste der Waigeu-Vögel 14 Brutvögel, 7 davon in neuen Rassen, hinzuzufügen, nämlich:

Aplonis metallica metallica (Temm.).
Myzomela nigrita steini subsp. nov.
Glyeichaera fallax pallida subsp. nov.
Oedistoma pygmaeum pygmaeum Salvad.
Gerygone chloronota meisei subsp. nov.
Sericornis spilodera ferruginea subsp. nov.
Edolisoma ceramense incertum (A. B. Meyer).
Lalage atrovirens atrovirens (Gray).
Collocalia vanikorensis waigeuensis subsp. nov.
Chalcites malayanus poecilurus (Gray).
Rhamphomantis megarhynchus sanfordi subsp. nov.
Loriculus aurantiifrons batavorum Stres.
Accipiter cirrhocephalus papuanus Rothsch. & Hart.
Bubulcus ibis coromandus (Bodd.).

DER BERICHT DER EXPEDITION STEIN.

" Unser Arbeitsgebiet in Waigeu war die Majalibitbay. Wir erreichten den auf dem Ostufer im nördlichen Teile der Bucht gelegenen Kampong Warmek am 9. V. 1931 und sammelten dort die Vertreter der Tieflandsfauna bis zum 19. V. *Glycichaera fallax pallida*, *Toxorhamphus iliolophus cinerascens*, *Gerygone chloronota meisei*, *Sericornis spilodera ferruginea* waren die bemerkenswertesten Ergebnisse. Unserer Absicht, den nicht allzu weit von Warmek entfernten, auf allen grösseren Karten mit 1000 m bezeichneten höchsten Punkt der Insel zu erreichen, war nicht durchführbar, da diese unter dem Namen 'goenong nok' bekannte Erhebung eine einzige bizarre Felsnadel war, die aus dem sie umgebenden kuppenartigen Gelände heraustach. Vom 20.–28. V. stand unser Lager im gebirgigen Hinterland von Warmek in etwa 300 m Höhe. Hier lebte auch *Schlegelia respublica*, die im Küstengebiet fehlte. Leider befanden wir uns im Damargebiet, das infolge seiner Einförmigkeit relativ tierarm ist. Die Urwaldbäume besassen hier gigantische Ausmasse; die meisten Vögel trieben sich in den sozusagen einen Wald über dem Wald bildenden Kronen umher. Ausreichende Serien zu erbeuten, stiess auf die grössten Schwierigkeiten, da wie in allen Damarwäldern Unterholz verhältnismässig schwach entwickelt war. Die einzigen Stücke von *Rhamphomantis megarhynchus sanfordi* und *Chalcites malayanus poecilurus* kamen hier zur Strecke, ebenso die Paare von *Edolisoma melan waigeuense* und *Lalage a. atrovirens*.

Unser nächstes Ziel war der zwischen der Majalibit- und Fofakbay gelegene Gebirgszug Lam-Lam (31. V.–5. VI. 32). Schon auf unserer Fahrt durch die herrliche, im Eingang ganz fjordartige Majalibit-Bucht—wie auch später—waren uns spärlich bewaldete Kuppen aufgefallen, wo häufig nur noch einzelstehende abgestorbene Stümme zu erblicken waren, dazwischen niedriger Buschwald und Alang-Alangflächen. Die Ursache davon in menschlichen Eingriffen zu sehen (Abbrennen!), möchte ich für verfehlt halten, da ganz

Waigeu ursprünglich wohl unbewohnt war und auch heute sehr sparsam, nur an den Küsten, bewohnt ist. Über menschliche Siedlungen im Innern der grossen Insel haben wir nichts in Erfahrung bringen können.

Lam-Lam (ca. 300–500 m) zeigte nun ganz ausgesprochenen Trockencharakter. Von Farnen unentwirrbar durchzogene Alang-Alangflächen wechselten ab mit niedrigem Buschwald. Der dürftige Wuchs, das völlige Fehlen grosser Urwaldbäume, der Mangel an Epyphyten liessen keinen Zweifel daran zu, dass wir uns im Trocken- bzw. Monsunwald befanden. Welchen Anteil diese hier kurz skizzierten Gebiete mit Trockencharakter an der Gesamtfläche von Waigeu haben mögen, entzieht sich unserer Kenntnis, erwähnenswert erscheint mir das Vorhandensein schon, weil wir sie weder auf einer der von uns besuchten Inseln im Norden Neuguineas noch auf dem Festlande selbst angetroffen haben, und weil Prof. Stresemann auf die auffallende Blassheit mancher endemischer Vogelrassen Waigeus hinweist. Über die allgemeinen klimatischen Verhältnisse der Insel vermögen wir bei der Kürze unseres Aufenthaltes nichts zu sagen, an Regen hat es jedenfalls nie gefehlt. Trotz des Vorhandenseins aller für sie günstigen Bedingungen liess sich im Lam-Lam kein Vertreter der Ploceiden feststellen, überhaupt war das Gebiet auffallend tierarm. *Oriolus* und *Philemon* waren häufig, also Gattungen, die wir dann später in Timor und Sumba als typische Vertreter des Buschwaldes kennen lernten. *Xanthotis*, *Oedistoma*, *Toxorhamphus novaeguinea* zogen durch, von Papageien hin und wieder ein Flug *Geoffroyus*, dazu einzeln *Probosciger aterrimus*, *Cinnyris* nicht zu vergessen, dieser typische Bewohner des trockenen Sekundärbusches. Auch eine kleine Serie von *Myzomela nigrita* in einer schönen neuen Rasse tröstete uns kaum über die Magerkeit unserer Ausbeute.

Es fehlten uns immer noch einige charakteristische Vertreter der Vogelfauna Waigeus. Die kleine *Micropsitta* und *Loriculus* erbeuteten wir ebenso wie *Gerygone magnirostris* im Mangrovewald bei dem Kampong Liussok, etwa in der Mitte der Majalibitbay an ihrem Ostufer gelegen. Zum Abschluss hielten wir uns in dem Kampong Lupintol, nahe dem Eingang der Majalibitbay gelegen, auf, von wo wir täglich ins Gebirge stiegen, in der Hauptsäche, um nach *Aegypodius bruijni* zu suchen, von dem wir bisher keine Spur hatten entdecken können. Auch hier war alle Mühe vergebens, und ich halte es nicht für unwahrscheinlich, dass bei diesem nur durch die eingeborenen Jäger Bruijns gesammelten Grossfusshuhn eine Verwechslung des Fundortes vorgekommen ist. Durch die vergebliche Suche nach diesem Vogel sind uns leider andere Arten entgangen, darunter auch *Pitta sordida novaeguineae*, deren charakteristische Krü krü kükürü ich im Küstenwald von Lupintol des Morgens öfters gehört hatte."

VERZEICHNIS DER BRUTVOGEL.

Das nachfolgende Verzeichnis umfasst 141 Arten. Dass es noch immer unvollständig ist, dürfte nicht zu bezweifeln sein. Für eine Insel von 2630 km² sind 141 Brutvögel eine stattliche Zahl. Die weit grössere Insel Seran (17000 km²) hat nur etwa 119, Flores (15100 km²) nur etwa 141 Brutvogelarten. Unter den ungefähr gleichgrossen Inseln ist Bali (5500 km²) mit gegen 150 Brutvogelarten ebenso reich bevölkert wie Waigeu. Beiden Inseln ist es zugute gekommen, dass sie mit einem grossen Landgebiet durch lange Zeiträume in unmittelbarer Verbindung gestanden haben : Bali mit Java, Waigeu mit Neuguinea.

Corvidae.

1. Corvus coronoides orru Bp.
2. Macrocorax fuscicapillus megarhynchus Bernstein.

Paradisaeidae.

3. Manucodia ater subsp. ?
4. Paradisaea rubra Daud.
5. Schlegelia respublica (Bonap.).
6. Ailuroedus buccoides oorti Rothsch. & Hart.

Oriolidae.

7. Oriolus szalayi substriatus Stres. & Pal.

Sturnidae.

8. Mino dumontii dumontii Less.
9. Aplonis cantoroides cantoroides (Gray).
10. Aplonis obscura obscura (Bp.).
11. Aplonis metallica metallica (Temm.).

Dicruridae.

12. Dicrurus bracteatus carbonarius Bp.

Meliphagidae.

13. Myzomela eques eques (Less. & Garn.).
14. Myzomela nigrita steini Stres. & Pal.
15. Toxorhamphus iliolophus cinerascens Stres. & Pal.
16. Toxorhamphus novaeguineae novaeguineae (Less.).
17. Melilestes megarhynchus vagans (Bernst.).
18. Glycichaera fallax pallida Stres. & Pal.
19. Oedistoma pygmaeum pygmaeum Salvad.
20. Lichmera argentauris argentauris (Finsch).
21. Meliphaga analoga analoga (Rchb.).
22. Meliphaga notata sharpei (Rothsch. & Hart.).
23. Meliphaga virescens sonoroides (Gray).
24. Xanthotis chrysotis fusciventris Salvad.
25. Xanthotis polygramma polygramma Gray.
26. Philemon novaeguineae novaeguineae (S. Müller).

Nectariniidae.

27. Cinnyris jugularis frenata S. Müller.
28. Cinnyris sericea cochrani Stres. & Pal.

Dicaeidae.

29. Dicaeum pectorale S. Müll.
30. Melanocharis nigra pallida Stres. & Pal.

Laniidae.

31. Cracticus cassicus (Bodd.).
32. Cracticus quoyi quoyi (Less.).
33. Pitohui kirhocephalus cerviniventris (Gray).
34. Pitohui ferrugineus leucorhynchus (Gray).
35. Myiolestes megarhynchus affinis Gray.
36. Pachycephala griseiceps waigeuensis Stres. & Pal.
37. Pachycephala phaeonota (S. Müll.).

Artamidae.

38. Artamus leucorhynchus papuensis Bp.

Muscicapidae.

39. Peltops blainvillei (Less. & Garn.).
40. Monarcha guttula guttula (Garn.).
41. Monarcha alecto chalybeocephalus (Garn.).
42. Monarcha chrysomela melanotus Sclater.
43. Arses telescophthalmus batantae Sharpe.
44. Rhipidura leucophrys melaleuca (Quoy & Gaimard).
45. Rhipidura rufiventris gularis S. Müll.
46. Rhipidura rufifrons squamata Müll. & Schleg.
47. Poecilodryas hypoleuca steini Stres. & Pal.
48. Microeca flavovirescens Gray.
49. Gerygone chrysogaster neglecta Wall.
50. Gerygone chloronota meisei Stres. & Pal.
51. Gerygone magnirostris cobana (Math.).
52. Gerygone palpebrosa palpebrosa Wall.
53. Machaerirhynchus flaviventer albifrons Gray.

Timeliidae.

54. Crateroscelis murinus capitalis Stres. & Pal.
55. Sericornis spilodera ferruginea Stres. & Pal.

Campophagidae.

56. Coracina lineata axillaris Salvad.
57. Edolisoma melan waigeuense Stres. & Pal.
58. Edolisoma tenuirostre nehrkorni Salvad.
59. Edolisoma ceramense incertum A. B. Meyer.
60. Lalage atrovirens atrovirens (Gray).

Hirundinidae.

61. Hirundo tahitica frontalis Quoy & Gaim.

Pittidae.

62. Pitta sordida novaeguineae Müll. & Schleg.
63. Pitta mackloti mackloti Temm.

Macrochires.

64. Hemiprocne mystacea mystacea (Less.).
65. Collocalia esculenta subsp.
66. Collocalia vanikorensis waigeuensis Stres. & Pal.

Caprimulgi.

67. Caprimulgus macrurus schillmölleri Stres.

Podargi.

68. Podargus papuensis papuensis Quoy & Gaim.
69. Podargus ocellatus ocellatus Quoy & Gaim.

Striges.

70. Ninox theomacha (Bp.).
71. Ninox rufa humeralis (Bp.).

Bucerotes.

72. Rhyticeros plicatus ruficollis (Vieill.).

Coraciae.

73. Eurystomus orientalis crassirostris Sclater.

Halcyones.

74. Alcyone azurea lessoni Cass.
75. Alcyone pusilla (Temm.).
76. Ceyx lepidus solitarius Temm.
77. Tanysiptera hydrocharis galatea Gray.
78. Halcyon saurophaga saurophaga Gould.
79. Halcyon chloris chloris (Bodd.).
80. Syma torotoro torotoro Less.
81. Sauromarptis gaudichaud (Quoy & Gaim.).
82. Melidora macrorhina waigiuensis Hart.

Cuculi.

83. Cacomantis variolosus infaustus (Cab. & Heine).
84. Chalcites malayanus poecilurus (Gray).
85. Rhamphomantis megarhynchus sanfordi Stres. & Pal.
86. Eudynamis scolopacea rufiventer (Less.).

Psittaci.

87. Cacatua galerita macrolopha (Rosenb.).
88. Probosciger aterrimus aleeto (Temm.).
89. Opopsitta diophthalmus diophthalmus (Hombr. & Jacqu.).
90. Micropsitta keiensis chloroxantha Oberh.
91. Tanygnathus megalorhynchos megalorhynchos (Bodd.).
92. Alisterus amboinensis dorsalis (Quoy & Gaim.).
93. Geoffroyus geoffroyi pucherani (Gray).
94. Eclectus roratus pectoralis (S. Müll.).

95. Loriculus aurantiifrons batavorum Stres.
96. Lorius lory major Rothsch. & Hart.
97. Eos squamata squamata (Bodd.).
98. Trichoglossus haematodus haematodus (L.).
99. Charmosynopsis placentis placentis (Temm.).

Accipitres.

100. Spizaetus gurneyi (Gray).
101. Haliaetus leucogaster (Gm.).
102. Pandion haliaetus cristatus (Vieill.).
103. Haliastur indus girrenera (Vieill.).
104. Henicopernis longicauda (Garn.).
105. Aviceda subcristata reinwardti (Müll. & Schleg.).
106. Accipiter novaehollandiae leucosomus (Sharpe).
107. Accipiter poliocephalus Gray.
108. Accipiter cirrhocephalus papuanus Rothsch. & Hart.

Gressores.

109. Threskiornis aethiopicus moluccus (Cuv.).
110. Ardea sumatrana Raffl.
111. Demigretta sacra sacra (Gm.).
112. Bubulcus ibis coromandus (Bodd.).
113. Butorides striatus moluccarum Hart.
114. Nycticorax caledonicus subsp. ?

Steganopodes.

115. Phalacrocorax melanoleucus melanoleucus (Vieill.).

Columbae.

116. Ptilinopus superbus superbus (Temm.).
117. Ptilinopus pulchellus pulchellus (Temm.).
118. Ptilinopus perlatus perlatus (Gemm.).
119. Ptilinopus rivolii prasinorrhous Gray.
120. Ptilinopus iozonus humeralis Wall.
121. Ptilinopus pectoralis pectoralis Wagl.
122. Ptilinopus nanus minimus Stres. & Pal.
123. Megaloprepia magnifica alaris Stres. & Pal.
124. Ducula myristicivora myristicivora Scop.
125. Ducula rufigaster rufigaster (Quoy & Gaim.).
126. Ducula pinon pinon (Quoy & Gaim.).
127. Myristicivora bicolor (Scop.).
128. Columba vitiensis halmaheira (Bp.).
129. Reinwardtoena reinwardti griseotincta Hart.
130. Macropygia amboinensis doreya Bp.
131. Gallicolumba rufigula rufigula (Jacq. & Puch.).
132. Chalcophaps stephani stephani Rchb.
133. Henicophaps albifrons albifrons Gray.
134. Caloenas nicobarica nicobarica (L.).
135. Goura cristata minor Schleg.

Anseres.

136. Tadorna radjah radjah (Garn.).

Limicolae.

137. Esacus magnirostris (Vieill.).

Lari.

138. Sterna bergii cristata Steph.

Ralli.

139. Eulabeornis tricolor tricolor (Gray).

Galli.

140. Megapodius freycinet freycinet (Quoy & Gaim.).
141. Aepypodius bruijni (Oust.).

In der Liste der Brutvögel, fällt besonders die völlige Abwesenheit von Bewohnern des Graslandes auf: weder *Lonchura* (= *Munia*), noch *Cisticola*, *Megalurus* und *Centropus* sind auf Waigeu gefunden worden. Ferner gibt es anscheinend keine eigentlichen Gebirgsvögel auf Waigeu, da die höchste Erhebung nur bis knapp 1000 m. aufragt.

VERZEICHNIS DER ZUGVÖGEL.

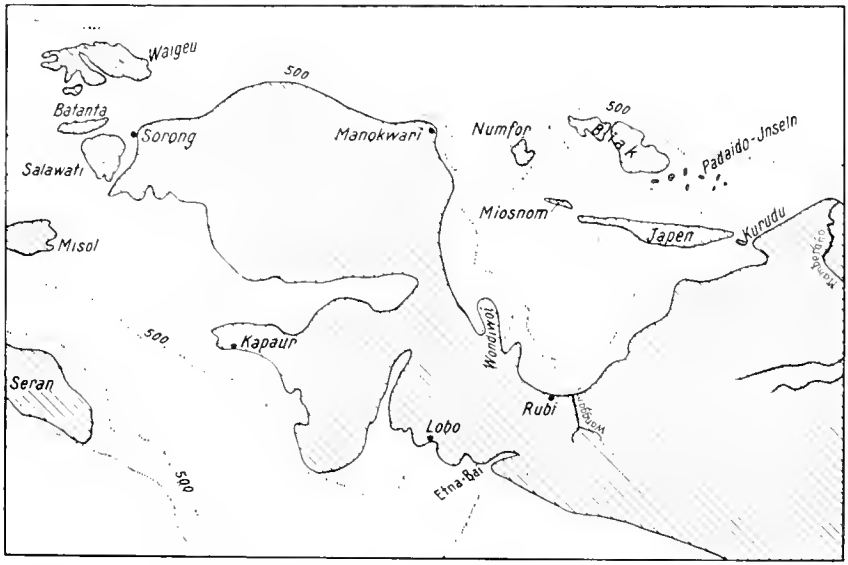
1. Muscicapa griseosticta (Swinh.)—Muscicapidae. Aus Südost-Sibirien.
2. Motacilla cinerea caspica (Gm.)—Motacillidae. Aus Ost-Sibirien.
3. Coracina novaehollandiae melanops (Lath.)—Campophagidae. Aus Süd-Australien.
4. Merops ornatus Lath.—Meropes. Aus Süd-Australien.
5. Eurystomus orientalis pacificus (Lath.)—Coraciae. Aus Süd-Australien.
6. Halcyon chloris sancta Vig. & Horsf.—Halcyones. Aus Süd-Australien.
7. Cuculus optatus Gould—Cuculi. Aus Ost-Sibirien.
8. Cacomantis variolosus variolosus Vig. & Horsf.—Cuculi. Aus Australien.
9. Butastur indicus Gm.—Accipitres. Aus Südost-Sibirien.
10. Accipiter soloensis (Horsf.)—Accipitres. Aus Ostasien.
11. Ixobrychus sinensis (Gm.)—Ardeidae. Aus Ostasien.
12. Stiltia isabella (Vieill.)—Limicolae. Aus Australien.

13–20. Charadrius dominicus fulvus Gm., Charadrius leschenaulti Less., Charadrius mongolus mongolus Pall., Actitis hypoleucos (L.), Tringa glareola (L.), Tringa incana brevipes (Vieill.), Calidris acuminata (Horsf.), Numenius phaeopus variegatus (Scop.)—Limicolae. Aus Ostasien.

ZUR BESIEDLUNGSGESCHICHTE.

Waigeu nimmt sowohl nach seiner geographischen Lage wie nach seiner Fauna eine vermittelnde Stellung zwischen Neuguinea und den Nordmolukken ein. Die meisten seiner Vogelarten sind papuanischen Ursprungs und von Neuguinea her entweder direkt oder über Salawati-Batanta eingewandert. Als der Westrand des papuanischen Festlandes sich (im Mittel- oder Spättertiär ?) in Inseln aufzulösen begann, hat zweifellos Waigeu mit Batanta zuerst insuläre

Selbständigkeit erlangt; viel später erst hat sich Salawati von Neuguinea losgelöst. Die schmale, aber tiefe Meerestrasse, welche Salawati von Batanta trennt, ist noch heute eine wichtige Faunenscheide, wenngleich sich der einstige Kontrast zwischen der Tierwelt beider Inseln mehr und mehr zu verwischen scheint und Batanta im Pleistocän mehrere Vogelarten von Salawati her empfangen hat, die hier ursprünglich gefehlt haben dürften, da sie auf Waigeu nicht vorkommen.



KARTE 1.—Übersichtskarte von West-Neuguinea mit den umliegenden Inseln. Die Isobare von 500 m. ist punktiert.

Dass die Ablösung von Waigeu–Batanta ins mittlere oder spätestens jüngere Tertiär verlegt werden muss, bezeugen die ausgeprägten Endemismen wie *Paradisaea rubra*, *Schlegelia respublica*, *Aepypodius bruijni* und *Pitohui kirhocephalus cerviniventris*, deren Verwandtschaft in Neuguinea wohnt.

AUF WAIGEU UND BATANTA, ABER NICHT AUF SALAWATI.

Paradisaea rubra.
Schlegelia respublica (Salawati: Diphyllodes magnificus).
Xanthotis chrysotis fusciventris.
Pitohui kirhocephalus cerviniventris u. batantae (Salawati: P. k. uropygialis).
Pitohui ferrugineus leucorhynchus (Salawati: P. f. ferrugineus).
Arses telescophthalmus batantae.
Eos squamata squamata (Salawati: Eos fuscata).

AUF SALAWATI UND BATANTA, ABER NICHT AUF WAIGEU.

Cicinnurus regius.
Gymnocorvus tristis (Waigeu: Macrocorax fuscicapillus).
Rhipidura maculipectus.
Coracina papuensis.
Cacomantis castaneiventris.
Centropus menbeki.
Chalcopsittacus ater ater.
Megapodius reinwardt.
Ptilinopus aurantiifrons.

Auf Waigeu und Neuguinea, aber nicht auf Salawati und Batanta.

Macrocorax fuscicapillus (bernsteini).
Myzomela nigrita (steini).
Toxorhamphus iliolophus (cinerascens).
Glycichaera fallax (pallida).
Oedistoma pygmaeum.
Melanocharis nigra (pallida).
Rhipidura rufiventris (gularis).
Gerygone chloronota (meisei).
Gerygone palpebrosa (palpebrosa).
Sericornis spilodera (ferruginea).
Coracina lineata (axillaris).
Edolisoma morio (nehrkorni).
Edolisoma ceramense (pallidigula).
Ninox theomacha.
Ninox rufa (humeralis).
Rhamphomantis megarhynchus (sanfordi).
Loriculus aurantiifrons.

Auf Salawati, aber nicht auf Batanta und Waigeu.

Seleucides m. melanoleucus.
Melanopyrrus anais anais.
Pycnopygius stictocephalus.
Monarcha trivirgata bernsteini.
Rhipidura threuothorax.
Chenorhamphus grayi.
Todopsis c. cyanocephalus.
Lyncornis papuensis.
Calliechthrus leucolophus.
Opopsitta g. guilelmi-tertii.
Charmosynopsis r. rubronotata.
Ptilinopus coronulatus trigeminus.
Ducula zoeae.
Eutrygon terrestris.
Talegallus cuvieri.
Casuarius unappendiculatus.

Einige wenige Arten Waigeus sind *von den Molukken her eingewandert* und nicht bis nach Neuguinea gelangt, nämlich :

Aplonis obscura.
Halcyon chloris.
Tanygnathus megalorhynchos.
Eos squamata.

Ferner werden auf Waigeu oder wenigstens auf den dicht vorgelagerten Inselchen einige Vogelarten angetroffen, die über die kleinen Inseln der Molukkensee weit verbreitet sind. Dass sie auf Neuguinea vermisst werden, hat ohne Zweifel einen oekologischen, nicht einen historischen Grund : sie finden eben nur auf kleinen Inseln die ihnen zusagenden Lebensbedingungen, ohne dass sich bisher angeben lässt, worin diese bestehen. Es sind :

Lichmera argentauris.
Pachycephala phaeonota.
Rhipidura rufifrons squamata.
Halcyon saurophaga.
Myristicivora bicolor.
Caloenas nicobarica.
Ptilinopus rivolii.

Endlich gehört zur Fauna von Waigeu noch eine Taubenform, die nur auf den westlichen papuanischen Inseln beheimatet ist: *Ducula myristicivora myristicivora*.

PARALLELITÄT DER GEOGRAPHISCHEN VARIATION.

Ein auffälliges Merkmal vieler endemischer Vogelrassen Waigeus besteht darin, dass sie blasser gefärbt sind als ihre auf der Berau-Halbinsel lebenden geographischen Vertreter. Das tritt besonders deutlich an olivfarbenen Federtönen hervor: auf Waigeu sind sie heller und graulicher, das heisst, die betreffenden Federn enthalten weniger gelbes Lipochrom und weniger dunkles Eumelanin als bei Manokwari. Schärfer noch ist vielfach in dieser Hinsicht der Gegensatz zwischen Waigeu einerseits und der Nordküste Neuguineas zwischen Mamberano und Sepik andererseits.

Das Gesagte gilt z. B. für die folgenden Rassenkreise:

Toxorhamphus iliolophus.
Glycichaera fallax.
Meliphaga analoga.
Meliphaga notata.
Melanocharis nigra.
Microeca flavovirescens.

Schwächere Pigmentierung ist auch in anderen Fällen ein Kennzeichen der Waigeu-Rasse, so bei

Myzomela nigrita.
Pitohui ferrugineus.
Poecilodryas hypoleuca.
Sericornis spilodera.
Edolisoma ceramense.

Es steht zu vermuten, dass die beobachtete Parallelität auf klimatische Bewirkung zurückgeht; mangels einer meteorologischen Statistik lässt sich diese Annahme vorerst noch nicht bekräftigen.

SYSTEMATISCHER TEIL.

Vorbemerkungen: Alle Längenmaasse in Millimetern, Gewichte in Gramm. Fl. = Flügel; Schw. = Schwanz (mittleres Steuerfederpaar); Gew. = Gewicht. In den Tabellen bedeutet $♂_3$: Hoden sehr stark entwickelt; $♂_0$: Hoden sehr klein, und Entsprechendes für das weibliche Geschlecht ($♀_3$, $♀_2$, $♀_1$, $♀_0$). Die Nummern entsprechen den Balgnummern der Sammlung Stein.

Corvus coronoides orru Bonap.

Gesammelt von: Bernstein, Guillemard, Platen, Stein.

1636.	19. V.	$♂_3$.	Fl. 305;	Schw. 162;	1. Jahresmauser.
1637.	7. VI.	$♂_1$.	„ 337;	„ 166;	ad. „
1638.	13. VI.	$♀_1$.	„ 327;	„ 162;	ad. „

Wie bei vielen Raubvögeln, z. B. *Accipiter gentilis* und *Haliaëtus albicilla*, so ist offenbar auch bei diesem Raben der Jugendschwanz relativ viel länger als der Altersschwanz. Das geht aus den obigen Messungen und noch folgenden weiteren Feststellungen hervor: Jobi $♂_2$ ad. Fl. 322; Schw. 167;—Jobi ♀ juv. Fl. 309; Schw. 167.—Manokwari $♂_1$ ad. Jahresmauser, Fl. 340; Schw. 169.—Numfor ♀ juv., Fl. 304; Schw. 166. Die physiologische Bedeutung dieser

Erscheinung liegt wahrscheinlich darin, dass der lange Schwanz die Tragfläche vergrössert und dadurch zur Entlastung der Flügelmuskulatur, die erst allmählich ihre volle Leistungsfähigkeit erreicht, beiträgt. In der Grösse und in der Schnabelform stimmen die Vögel von Waigeu mit solchen von Neuguinea überein.

Mageninhalt: Fruchtfleisch mit Kernen (1637), Fruchtfleisch, dazwischen weizenkorngrosse Kerne (1638), Krabben, Beeren, Samen (Jobi 314).

Macrocorax fuscicapillus megarhynchus (Bernstein).

Corvus megarhynchus Bernstein, *J. f. O.* Bd. 12, p. 407 (1864—Waigeu).

1631. 19. V. ♂3. Fl. 335; Schw. 167
1634. 22. V. ♂2. „ 337; „ 174; Gew. 750
1633. 16. VI. ♀1. „ 336; „ 172
1635. 1. IV. ♀0. (Grossgefieder noch im Wachstum!)
Berliner Mus. 27. 596: Waigeu, Platen leg. 3. I. 1884, ♂ Fl. 333; Schw. 167.

Färbung: 1631 und 1634 mit ganz schwarzem Schnabel.

1633 mit grösstenteils gelbem Schnabel, der nur in der Spitzenhälfte, längs des Firstes und der Schnabelschneiden sowie an der Spitze schwarz ist.

1635 mit ganz gelbem Schnabel, der die schwarzen Flecken von 1633 nur leicht angedeutet hat, und mit gelblichen statt schwarzen Sohlen der Läufe und Zehen.

Der letztgenannte Vogel trägt das schon von Salvadori (*Orn. Pap.* ii, p. 489) beschriebene Jugendkleid, in welchem der Vogel etwas an den viel langschwänzigeren und in der Augenumgebung nackten *Gymnocorvus tristis* erinnert. 1633 trägt, der Struktur nach zu urteilen, das kombinierte I. Ja. Kl. und würde mit der ersten Grossgefiedermauser einen einfarbigen schwarzen Schnabel erhalten haben. Mit Salvadori nehmen wir an, dass die Schnabelfarbe kein Geschlechtsmerkmal ist, sondern ein Altersmerkmal. Ein im ersten Jahreskleid befindliches Männchen des Berliner Mus. von Taua am Mamberano hat ungefähr dieselbe Schnabelfarbe wie 1633, aber die schwarze Färbung dehnt sich schon weiter gegen die Schnabelbasis hin aus. Dieser Vogel steht bereits in Grossgefiedermauser, in der er merkwürdigerweise die beiden äusseren Handschwingen jederseits vor den übrigen Handschwingen und die beiden äusseren Steuerfedernpaare wechselt.

Dieser kurzschwänzige Rabe mit kobaltblauen Augen und äusserst hohem Schnabel ist ebenso wie *Gymnocorvus tristis* ein Fruchtfresser, was schon Bernstein festgestellt hat und von Stein bestätigt worden ist, der als Mageninhalt Fruchtfleisch, und als Inhalt des Darmes roten Fruchtsaft notierte. Wir halten es nicht für angebracht, diesen merkwürdigen Vogel in die Gattung *Corvus* zu stellen, wie es Meinertzhagen (Nov. Zool. 33, 1926, p. 69) getan hat.

Verbreitung und Rassen: Die Verbreitung dieses Vogels ist seltsam zerrissen: man hat ihn bisher nur auf den Aru-Inseln und auf Waigeu gefunden, und das Berliner Museum besitzt ein Stück, das von Riggenbach am 10. vii. 1910 bei Taua am Mamberano erbeutet worden ist; sonst ist dieser Vogel vom Festland Neuguineas nicht nachgewiesen worden. Der Typus von *Macrocorax fuscicapillus* Gray stammt nicht von Dorey, sondern—wie aus der Bemerkung von Wallace in *Ibis* 1863, pp. 100–102, klar hervorgeht—von den Aru-Inseln. Es scheint,

dass Waigeuvögel etwas kürzere und niedrigere Schnäbel haben als solche von den Aru-Inseln und vom Mamberano, wie aus folgenden Massen hervorgeht :

		Schnabellänge.	Schnabelhöhe.
Waigeu	1631	70	28
	1634	71	27,5
	1633	72	27
	27.596	73	27
Taua	—	80,5	29

Unterschiede in der Flügellänge bestehen wahrscheinlich nicht ; freilich ist das ♂ von Taua mit 343 um etwas langflügliger als die Vögel von Waigeu.— Biologisches bei Bernstein, *l.c.*

Manucodia ater subsp. ?

Gesammelt von : Wallace, Bernstein, Beccari, Bruijn, Guillemard, Platen, Stein.

1595.	16. VI.	♂2.	Fl. 184			
1594.	8. VI.	♂2.	„ 188 ;	Gew. 272		
1599.	15. VI.	♂2.	„ 191			
1552.	2. VI.	♂2.	„ (182) ;			Flügelmauser.
1598.	15. V.	♂1.	„ 185	„ 238		
1597.	16. V.	♀2.	„ 177	„ 180		„
1600.	15. V.	♀1.	„ 178	„ 224		„
1596.	21. V.	♀.	„ 174	„ —		
1593.	15. VI.	♀?.	„ 172	„ 206		

Ich wage es nicht einen neuen Namen zu schaffen, da die Unterschiede in der Färbung ohne sehr grosse Serien von einunddemselben Platze in der Gattung *Manucodia* schwer festzustellen sind. Es scheint mir aber, dass diese Serie aus Waigeu einen stärkeren und tieferen purpurblauen Glanz hat als die Stücke aus Manokwari und weniger grünlich, mehr blau auf dem Bauche ist.

Paradisaea rubra Daud.

Paradisea rubra Daudin, *Traité d'Orn.* Bd. 2. p. 271 (1800—New Guinea ?).

Gesammelt von : Lesson, Wallace, Bernstein, Beccari, Bruijn, Guillemard, Platen, Stein.

1571.	15. VI.	♂2.	Fl. 169 ;	Gew. 208 ;	volles Prachtkleid.	
1583.	2. VI.	♂2.	„ 176 ;	„ 224 ;	„	„
1579.	26. V.	♂2.	„ 176 ;	„ 210 ;	„	„
1629.	15. VI.	♂1.	„ 171 ;	„ 227 ;	„	„
1584.	16. VI.	♂1.	„ 174 ;	„ —	„	„
1577.	12. V.	♂1.	„ 173 ;	„ 201 ;	„	„
1576.	12. V.	♂1.	„ 174 ;	„ 200 ;	„	„
1619.	16. VI.	♂1.	„ 170 ;	„ —	„	„
1578.	26. V.	♂1.	„ 175 ;	„ 209 ;	„	„
1580.	7. VI.	♂1.	„ 174 ;	„ 175 ;	„	„
1575.	7. VI.	♂1.	„ 171 ;	„ 158 ;	„	„
1630.	22. V.	♂2.	„ 173 ;	„ 156		
1617.	15. VI.	♂2.	„ 175 ;	„ 204		
1620.	7. VI.	♂1.	„ 173 ;	„ 212		
1624.	11. V.	♂1.	„ 174 ;	„ 193		
1582.	9. VI.	♂1.	„ 174 ;	„ 209		

1574.	27. V.	♂1.	Fl. 170 ;	Gew.	204
1625.	26. V.	♂1.	„ 174 ;	„	201
1626.	15. VI.	♂1.	„ 169 ;	„	—
1618.	11. V.	♂1.	„ 163 ;	„	177
1572.	10 V.	♂1.	„ 172 ;	„	204
1587.	15. VI.	♂1.	„ 158 ;	„	—
1628.	13. V.	♂0.	„ 160 ;	„	—
1585.	11. V.	♀2.	„ 150 ;	„	159
1581.	13. V.	♀2.	„ 161 ;	„	179
1573.	27. V.	♀1.	„ 152 ;	„	182
1627.	11. V.	♀.	„ 150 ;	„	135

Diese Art, einer der ältest beschriebenen Paradiesvögel, ist fast nur bekannt nach den Tausenden von Bälgen, die in den Federhandel kamen. Daher ist diese prachtvolle Serie von 11 ♂♂ im Prachtkleide, 3 jüngeren ♂♂ mit ausgebildeten mittleren Steuerfedern, 5 ♂♂ juv. in ♀♀ Kleide und 4 ♀♀ eine der schönsten Erfolge des Herrn Stein. Die Entwicklung der hornartigen mittleren Schwanzfedern aus Federn, die anfänglich normale Federn sind, durch mehrere Mausern nach und nach sich nach vorne zu einer an einem dünnen Drahte sitzenden Flagge verdünnen, um endlich zu einer Hornplatte zu werden, ist höchst interessant und zeigt, wie die Umgestaltung der Schmuckdrähte von *Seleucides* in den Bastard *Janthothorax mirabilis* auf umgekehrtem Wege vor sich gegangen ist.

Mageninhalt: Fruchtfleisch, Samen von Bohnengrösse, aber nicht im Darmtrakt (1574).

Schlegelia respublica (Bonap.).

Lophorina respublica Bonaparte, *Compt. Rend. Ac. Sci.* xxx, p. 131 (Februar 1850—Fundort unbekannt).
Paradisea wilsoni Cassin, *Proc. Acad. Sc. Philad.* Bd. v, p. 57 (August 1850—Fundort unbekannt).
Schlegelia calva Bernstein, *Nat. Tijdschr. Ned. Ind.* 27, p. 79 (1864—Waigeu).

Gesammelt von: Bernstein, Beccari, Bruijn, Guillemard, Platen, Stein.

1095.	21. V.	♂3.	Fl. 96 ;	Gew.	53	
1100.	8. VI.	♂2.	„ 99 ;	„	66,5	
1099.	8. VI.	♂2.	„ 99 ;	„	59	
1094.	21. V.	♂2.	„ 97 ;	„	52,5	
1101.	8. VI.	♂1.	„ 96 ;	„	59,5	
1093.	25. V.	♂1.	„ 96 ;	„	66 ;	Kleingefieder in Mauser.
1092.	25. V.	♂1.	„ 96 ;	„	57	
1098.	22. V.	♂0.	„ 96 ;	„	61	
1091.	22. V.	♂2.	„ 98 ;	„	59 ;	Übergangskleid, Schnabel innen grünlichweiss, Füsse schön blau.
1097.	21. V.	♂1.	„ 97 ;	„	56 ;	1. Jahreskleid.
1096.	26. V.	♀1.	„ 96 ;	„	53	

Von dieser höchst merkwürdigen Art hat Stein 8 alte ♂♂ (1 in voller Mauser), 1 ♂ juv., 1 ♂ juv., 1 ♀ gesammelt. Es sind in den letzten Jahren durch Wilfred Frost und Shaw Mayer viele dieser Vögel lebend nach Europa gekommen, und so sind wir mit der wunderbar schönen blauen Färbung der nackten Kopfhaut und der Beine bekannt geworden, worüber keine Angaben der Sammler auf Etiketten oder in Büchern zu finden waren.

Mageninhalt: Fruchtkerne, keine im Trakt (1099), Fruchtfleisch (1093), Früchte mit Kernen von Bohnengrösse, im Darmtrakt *keine* Kerne (1098).

Ailuroedus buccoides oorti Rothsch. & Hart.

Ailuroedus buccoides oorti Rothschild & Hartert, *Nov. Zool.* Bd. xx, p. 526 (1913—Waigeu).

Gesammelt von : Bernstein, Bruijn, Platen, Stein.

1568. 7. VI. ♀$_2$. Fl. 138. Gew. 152.

Von dieser Form hat Herr Stein nur ein ♀ erbeutet, welches die Kennzeichen der Unterart deutlich zeigt.

Mageninhalt : Früchte, dazwischen Schalenreste von Schnecken.

Oriolus szalayi substriatus subsp. nov.

Gesammelt von : Wallace, Bernstein, Bruijn, Platen, Stein.

1548. 23. V. ♂$_2$. Fl. 148 ; Gew. 103 (Typus).
1549. 10. V. ♀$_0$. „ 145 ; Grossgefiedermauser.

Mit Vögeln von Neuguinea übereinstimmend bis auf den Umstand, dass die Schaftstriche der Bauchfedern weniger hervortreten und die ganze Unterseite etwas graulicher braun, nicht so bräunlich erscheint wie bei den Neuguinea-Vögeln (verglichen mit Exemplaren von Manokwari, Weyland-Gebirge und Sepik-Gebiet).

Mageninhalt : Früchte mit Samen von Erbsengrösse, auch im Trakt.

Typus : ♂ ad., Waigeu, 23. Mai 1931, Stein leg. Nr. 1548.

Mino dumontii dumontii Lesson.

Gesammelt von : Wallace, Bruijn, Guillemard.

Leider hat Herr Stein es für unnötig gehalten, einige Belegstücke dieser Art zu sammeln, so dass die Frage, ob die Waigeuvögel von der grünschillernden Rasse *dumontii* zu trennen sind, nicht von uns entschieden werden kann.

Aplonis cantoroides cantoroides (Gray).

Salvadori, *Ibis* 1886, p. 152 (Waigeu).

Gesammelt von : Platen (vergl. Salvadori, *l.c.*).

Aplonis obscura obscura (Bonap.).

Gesammelt von : Bernstein, Platen.

Salvadori (*Orn. Pap.* ii, p. 455) hat die von Bernstein gesammelten Exemplare gesehen und sagt von ihnen, dass sie sich durch besondere Grösse und lange Schwänze auszeichnen.

Aplonis metallica metallica (Temm.).

Gesammelt von . Stein.

986.	12. V.	♂$_2$.	Fl. 108 ;	Schw. 90 ;	Gew. 58,5 ;		Flügelmauser.
993.	17. V.	♂$_1$.	„ 106 ;	„			Grossgefiedermauser.
994.	16. V.	♀$_2$.	„ 108 ;	„ 85 ;	„ 61		
992.	16. V.	♀$_2$.	„ 102 ;				Mauser.
999.	16. V.	♀$_0$.	„ 106,5 ;	„ 79 ;	„ 64		
991.	18. V.	♀$_0$.	„ 104 ;	„ 79 ;	„ 59 ;		Mauser.
990.	18. V.	♀$_0$.	„ 106 ;	„ 90 ;	„ 64		

Sämtlich im Alterskleid.

Dicrurus bracteatus carbonarius Bonap.

Gesammelt von : Wallace, Bruijn, Beccari, Guillemard, Platen, Stein.

1562.	10. V.	♂$_2$.	Fl. 160 ;	Gew. 91	
1586.	10. VI.	♂$_1$.	„ 157 ;	„ 83,5	
1564.	10. VI.	♂$_1$.	„ 157,5 ;	„ 83	
1565.	22. V.	♀$_1$.	„ 149 ;	„ 80 ;	Grossgefiedermauser.

Ununterscheidbar von Exemplaren aus Manokwari und dem Sepikgebiet.

Mageninhalt : Hartschalige Käfer, ganz verschluckt (1562). Insekten (Jobi 258 und 208). Heuschrecken (Jobi 288). Heuschrecken und Flügeldecken von Käfern (Numfor 921). Fliegen (Manokwari 115).

Myzomela eques eques (Lesson & Garnot).

Cinnyris eques Lesson & Garnot, *Voy.* "*Coquille*," livr. 4, pl. 30 (1828—Waigeu).

Gesammelt von : Lesson, Wallace, Bernstein, Stein.

♂♂ ad. (12. V.–10. VI.)	Fl. 67–67,5–68–68,5–69^2–69,5–70^4–70,5^2–71^5–72^5–73.
	Schw. 48,5–51^3–51,5^3–52^3–52,5–53^5–53,5^2–54–55^2–56^2.
	Schn. 12–12,5–13^6–13,3^2–14^3–14,2^2–14,5–15.
	Gew. 13–13,5^3–13,7–13,8–14^5–14,2^1–14,5^2–14,7–15,2–15,5^2–15,7.
♂♂ juv. (15.–30. V.)	Fl. 66^2–67,5– ; Schw. 49–50 ; Schn. 13^3– ; Gew. 14,2^2.
♀ ad. (30. V.)	Fl. 60,5 ; Schw. 43– ; Schn. 11,5.

1 ♂ ad. in Grossgefiedermauser. Schnabellänge gemessen vom Vorderrand des Nasenloches.

Unsere Serie von Waigeu scheint sich gegenüber Bälgen von Misol und dem Vogelkopf durch kürzeren und breiteren roten Kehlfleck auszuzeichnen. Indessen mag dies an verschiedener Streckung des Halses liegen, und wir wagen daher nicht, der beobachteten Tatsache einen Wert beizumessen. 3 ♂♂, Nr. 1392, 1406 und 1408, tragen das Jugendkleid. Es gleicht in der Färbung im wesentlichen dem Alterskleid, aber die Federn sind etwas weitstrahliger und wolliger. Die Unterseite ist etwas bräunlicher, weniger graulich, und die Ohrdecken sind nicht wie beim ad. braunschwarz wie der Oberkopf, sondern leicht rötlich getönt. Der rote Kehlfleck ist wie beim ad. ausgebildet. Es ist sehr interessant, festzustellen, dass das Jugendkleid der Populationen, welche die Nordküste zwischen Rubi und Astrolabebai bewohnen, ganz anders aussieht. Hier ist nämlich der Vorderkopf matt karmoisinrot, die Kopfseiten sind ebenfalls karmoisinrot (eine Färbung, die bei den jungen *M. e. eques* nur ganz schwach angedeutet ist), und die roten Federn des Kehlschildes treten erst auf, nachdem diese Region durch rauchbraune Federn mit ganz schmalen roten Spitzen befiedert worden ist. A. B. Meyer (*Sitzungsber. K. Akad. Wiss. Wien*, 1. Abtl. Bd. 70, 1874, p. 216) hat dieses Jugendkleid als erster nach einem Exemplar von Rubi beschrieben. Stresemann beschrieb es erneut in *Arch. f. Naturgesch.* 1923, A. 7, p. 47. Es liegt uns jetzt vor vom Mamberano, von Hollandia und dem Sepikgebiet, in insgesamt 7 Exemplaren. Wahrscheinlich gleicht das Jugenkleid auf Misol und auf dem Vogelkopf demjenigen der Waigeuvögel. Wir benennen daher die Rasse, welche das primitive Jugendkleid besitzt und unseres Wissens zwischen Rubi und Astrolabebai lebt :

Myzomela eques primitiva subsp. nov.

Typus : ♀ juv., Gratlager im Sepikgebiet, 20. August 1912, Dr. Bürgers leg. Nr. 396 (im Zoolog. Museum Berlin).

Myzomela nigrita steini Stres. & Pal.

Myzomela nigrita steini Stresemann & Paludan, *O. M. B.* 40, p. 14 (1932—Waigeu).

Gesammelt von : Stein.

1299.	2. VI.	♂3.	Fl. 60 ;	Schw. 43 ;	Schn. 15 ;	Gew. 8,6	
1300.	1. VI.	♂2.	„ 60 ;	„ 46 ;	„ 15 ;	„ 9,3	
1302.	1. VI.	♂.	„ 54 ;	„ 36 ;	„ 15 ;	„ —	
1303.	1. VI.	♀2.	„ 51 ;	„ 35 ;	„ 14,5 ;	„ 7,5 ;	Flügeldecken in Mauser.
1301.	2. VI.	♀2.	„ 51 ;	„ 35 ;	„ 14 ;	„ 7	

Die Originaldiagnose lautet wie folgt :

" Waigeu, wo Herr Stein eine kleine Serie (2 ♂♂, 2 ♀♀, 1 ♂ I. Ja. K.) von *Myzomela nigrita* sammelte, ist ein für diese Art neuer Fundort. Sie tritt dort in einer endemischen Rasse auf, die von besonderem theoretischen Interesse ist, denn man hat in ihr das bisher fehlende Bindeglied zwischen der stark geschlechtsdimorphen Rasse *nigrita* Gray (anscheinend = *meyeri* Salvad. = *pluto* Salvad.) und den in beiden Geschlechtern schwarzen Rassen *ernstmayri* Meise vom Ninigo-Archipel und *hades* Meise von St. Matthias gefunden. Das Weibchen der Waigeu-Rasse, die wir ihrem Entdecker widmen, ist dem Männchen sehr ähnlich, hat aber noch Spuren der roten Kehlfärbung, die beim Weibchen von *nigrita* Gray so stark hervortritt.

♂ ad. Im Vergleich zu allen anderen Rassen nicht einfarbig schwarz, sondern auf Rücken und Unterkörper sehr dunkel mausgrau (etwa deep mouse-gray, Ridgw. Tab. 5), nach dem Kopf zu in mattes Grauschwarz übergehend. Analgegend und Unterschwanzdecken noch heller grau als übrige Unterseite. Flügel und Schwanz matt schwarz ; Unterflügeldecken, Axillaren und Innensäume der Schwungfedern schneeweiss, wie bei *nigrita* Gray. Flügel 60, Schnabel 15, Schwanz 43–46 mm.

♀ ad. Im Wesentlichen wie ♂ gefärbt, aber Kinn und vorderster Teil der Kehle nicht schwarz, sondern schwarz mit breiten roten Spitzen, übrige Unterseite etwas heller mausgrau als beim ♂, ohne den olivbräunlichen Ton der weiblichen *nigrita*. Oberseite ebenfalls ohne olivbraunen Ton. Stirn und Kopfseiten graulich schwarz, ohne jede rote Färbung. Armschwingen nicht so tief schwarz wie beim ♂ und mit sehr schmalem olivfarbenen Aussensaum. Flügel 51, Schnabel 14–14,5, Schwanz 35 mm.

I. Ja. K. Wie ♀ ad., aber etwas grösser, besonders mit grösserem Schnabel. Flügel 54, Schnabel 15, Schwanz 31 mm.

Typus : ♂ ad., Waigeu : Lamlam, 2. Juni 1931, G. Stein leg. Nr. 1299.

Verbreitung : Waigeu."

Toxorhamphus iliolophus cinerascens subsp. nov.

Gesammelt von : Beccari, Stein.

♂♂ (11. V.–9. VI.)	Fl. 62–62,5–63–64–64,5²–65,5–66
	Gew. 11–11,5–11,7–12–12,2²–12,5
♂ juv. : 9. VI.	Fl. 57 ; Gew. 11,5
♀♀ (29. V.–12. VI.)	Fl. 58–59²–60² ; Gew. 9,5–10²–11,2

Auf Waigeu lebt die blasseste unter allen bisher bekannten Rassen von *Toxorhamphus iliolophus*. Sie ist noch ärmer an Eumelanin und gelbem Lipochrom als *Toxorhamphus iliolophus affinis* Salvad. vom Arfakgebirge und unter-

scheidet sich von diesem durch weisslichere, weniger grauliche Tönung von Kehle, Brust und Bauchmitte und reiner aschgraue, viel weniger olivfarbige Säumung der Federn des Oberkopfes. *T. i. iliolophus*, welcher Jobi, Miosnom, das Cyclopen-Gebirge und Sepikgebiet bewohnt, ist sowohl auf dem Oberkopf wie auf der Unterseite weit reicher an gelbem Lipochrom als *affinis*, so dass wir eine fortlaufende Reihe haben, die zu immer stärkerer Entwicklung des Lipochromes führt.

Typus: Waigeu ♂ ad. 11. Mai 1931, G. Stein leg. Nr. 1318.

Verbreitung: Waigeu.

Toxorhamphus novaeguineae novaeguineae (Lesson).

Gesammelt von: Wallace, Beccari, Guillemard, Platen, Waterstradt, Stein.

1338.	10. V.	♂3.	Fl. 71;	Gew. 13,5;	Flügelmauser.	
1337.	12. V.	♂3.	„ 72,5;	„ 13,8		
1332.	6. VI.	♂2.	„ 71;	„		
1329.	29. V.	♂2.	„ 70;	„ 11		
1327.	30. V.	♂1.	„ 65,5;	„ 12		
1341.	25. V.	♂1.	„ 65;	„ 13,5		
1328.	9. VI.	♂1.	„ 72;	„ 12		
1335.	7. VI.	♂1.	„ 66,5;	„ 13		
1336.	9. VI.	"♂?"	„ 67,5;	„ 12,5		
1331.	22. V.	"♀?"	„ 68,5;	„ 11		(♂?).
1334.	20. V.	♀2.	„ 62;	„ 9,5		
1340.	11. VI.	♀2.	„ 62;	„ 9		
1330.	23. V.	♀1.	„ 60;	„ 10,2		
1339.	21. V.	♀1.	„ 60;	„ 9,8;	Flügelmauser.	
1333.	29. V.	♀.	„ 62;	„ 10,5	„	

Als Variation der Flügellänge ergibt sich also ♂♂ 65–72,5, ♀♀ 60–62 mm. Ununterscheidbar von Serien aus Manokwari, Jobi, Mamberano und Sepik.

Mageninhalt: Kleine Insekten (1331, 1332, 1335).

Melilestes megarhynchus vagans (Bernstein).

Arachnothera vagans Bernstein, *Journ. f. Orn.* 12, p. 405 (1864—Waigeu).

Gesammelt von: Wallace, Bernstein, Bruijn, Guillemard, Platen, Waterstradt, Stein.

1063.	17. V.	♂3.	Fl. 101;	Gew. 41
1066.	29. V.	♂3.	„ 97;	„ 42,2
1064.	5. VI.	♂2.	„ 101;	„ 31
1065.	7. VI.	♀2.	„ 90;	„ 31
1062.	30. V.	♀.	„ 102;	„ 41

M. m. vagans gleicht in der Färbung im wesentlichen der kürzlich beschriebenen Rasse *M. m. stresemanni* Hartert von der Nordküste Neuguineas zwischen Mamberano und Astrolabe-Bai einschliesslich der Insel Jobi, hat aber eine hellere Kehle, und die Säume der Kopffedern sind grauer als die der Rückenfedern, während sie bei *stresemanni* der Rückenfärbung gleichen. Unterschiede in der Schnabellänge bestehen nicht. Viel besser unterschieden ist *vagans* von der ihr benachbarten Rasse *megarhynchus* und zwar dadurch, dass der gelbliche Anflug bei *vagans* an Kinn und Kehle völlig fehlt und an der Brust viel stärker zurücktritt, dass ferner die Federn der Bauchseite viel düsterer, nicht so rotbraun

gefärbt sind und die Säume der Oberkopffedern viel grauer, weniger olivbraun sind.

Mageninhalt: Insekten (1063–1064—Jobi 591), kleine Käfer (Jobi 593).

Glycichaera fallax pallida Stres. & Pal.

Glycichaera fallax pallida Stresemann & Paludan, *O. M. B.* Bd. 40, p. 15 (1932—Waigeu).

Gesammelt von: Stein.

1322.	26. V.	♂2.	Fl. 61;	Gew. 11		
1321.	23. V.	♂0.	„ 61;	„ 11	; Grossgefiedermauser.	
1323.	16. V.	♂2.	„ 63;	„ 11		„
1324.	2. VI.	♀2.	„ 56,5;	„ 10		
1326.	13. V.	♀1.	„ 58,4;	„ 11		„
1320.	11. VI.	♀1.	„ 55;	„ 10		„
1325.	16. V.	♀0.	„ 56;	„ 8,8		

Die Originalbeschreibung lautet wie folgt:

"Oberkopf viel grauer, weniger oliv als *G. f. fallax*; während *fallax* nahezu einheitlich olivfarbene Oberkopffedern hat, sind diese bei der Waigeu-Rasse hell aschgrau mit sehr schmalem olivfarbenen Saum. Rücken mehr grau oliv, weniger grünlich oliv. Unterseite viel lipochromärmer: Federn von Kehle und Brust zart grau mit blass gelblichen Seitensäumen, statt von breitem citrongelben Saum rings umgeben zu sein; Bauch und Unterschwanzdecken viel blasser gelb, mit deutlich hervortretendem gräulich weissem (lipochromlosem) Basalteil der Rami. Flügel ♂ 61–63, ♀ 55–58,5 mm.

Typus: ♂, Waigeu 26. Mai 1931, G. Stein leg. Nr. 1322.

Verbreitung: Waigeu."

Ein ♂ von Misol in Zoolog. Staatssamml. München, Dr. Tauern leg., ist von *G. f. pallida* sehr verschieden und stimmt ziemlich gut mit der echten *Glycichaera f. fallax* Salvad. (terra typ. Manokwari) überein, doch scheint es an der Brust kräftiger gelb, weniger grünlich gefärbt zu sein.

Oedistoma pygmaeum pygmaeum Salvadori.

Gesammelt von: Stein.

1474.	3. VI.	♂3.	Fl. 46;	Gew. 5,1
1476.	2. VI.	♂2.	„ 47;	„ 5,1
1473.	3. VI.	♂2.	„ 45,5;	„ 5
1472.	5. VI.	♂2.	„ 45,5;	„ 5
1477.	2. VI.	♀1.	„ 42,5;	„ 4,4
1475.	VI.	♀0.	„ 41,5;	„ 5

Die vier im Berliner Museum vom Sepik zum Vergleich vorliegenden Exemplare sind etwas grösser (♀ 44–46–47,5; ♂ 51) als die kleine Serie von Waigeu und scheinen auf Oberkopf und Brust etwas weniger grau getönt zu sein, während ein von Herrn Stein am 9. II. bei Manokwari gesammeltes ♂3 (Fl. 48) besser mit der Waigeuserie übereinstimmt. Möglicherweise lebt im Sepikgebiet eine unterscheidbare Rasse. Ein von Mayr im Cyclopengebirge gesammeltes ♀ mit einer Flügellänge von 44 stimmt durchaus mit der Sepikserie überein; wahrscheinlich wird man zwei Rassen zu unterscheiden haben, eine kleinere und blassere auf Waigeu und bei Manokwari und eine grössere und grünlichere im Cyclopengebirge und Sepikgebiet. Doch bleibt mehr Material von Manokwari abzuwarten.

Lichmera argentauris argentauris (Finsch).

Ptilotis argentauris Finsch, *Abh. Naturw. Verein Bremen*, vol. ii, p. 364 (1875—patr. subst. Waigeu); Stresemann, *Nov. Zool.* xix, 1912, p. 345.

Gesammelt von: Bruijn.

Dieser Vogel ist den meisten Sammlern vermutlich deshalb entgangen, weil er nicht auf der Hauptinsel, sondern auf ihr vorgelagerten Inseln leben dürfte. Ausser von Waigeu kennt man ihn von Misol, Gebe, Damar bei Halmahera und Halmahera.

Meliphaga analoga analoga (Reichenbach).

Ptilotis analoga Reichenbach, *Handb. d. Spec. Ornithol., Meropinae*, p. 103, tab. 467 (1852—ex Hombron u. Jacquinot; terra typ. wahrscheinlich Triton-Bai).

Gesammelt von: Bernstein, Bruijn, Beccari, Guillemard, Platen, Stein.

1278.	11. VI.	♂0.	Fl. 83;	Gew. 22
1279.	12. VI.	♂0.	„ 82,5	
1292.	8. VI.	♂1.	„ 78,5;	„ 22,5
1283.	11. V.	♂2.	„ 86;	„ 22,5
1281.	12. V.	♂2.	„ 84,5;	„ 22,5
1289.	3. VI.	♂1.	„ 85,5;	„ 25,5
1276.	10. V.	♂2.	„ 83;	„ 21,5
1294.	8. VI.	♂2.	„ 82;	„
1277.	14. V.	♂?	„ 78;	„ 21
1285.	12. VI.	♀2.	„ 78;	„ 22,5
1282.	26. V.	♀2.	„ 78;	„ 24
1293.	27. V.	♀2.	„ 80;	„ 25
1280.	24. V.	♀1.	„ 79;	„ 22
1288.	4. VI.	♀2.	„ 76	
1291.	3. VI.	♀1.	„ 73,5;	„ 20

Diese Art variiert auf Neuguinea stärker als bisher angenommen wurde. Wie bei *Meliphaga notata* und *Glycichaera fallax* zeichnen sich Exemplare von Waigeu durch stärkere Abblassung des gelben Lipochromes aus, während die Populationen von Japen und der Nordküste Zwischen Mamberano und der Astrolabe-Bai besonders reich an gelbem Lipochrom sind. Waigeuvögel sind daher unterseits graulich, oberseits grünlich olivfarben, Sepikvögel unterseits grünlich, oberseits gelblich olivfarben. Eine von Herrn Stein bei Manokwari gesammelte Serie steht zwischen diesen beiden Extremen ungefähr in der Mitte, nähert sich aber mehr den Waigeuvögeln, und mit ihr stimmt eine von Herrn Stein am Fusse des Weylandgebirges (Menoo- und Wanggarfluss) gesammelte Serie ziemlich genau überein. Wir betrachten diese Exemplare als Repräsentanten der echten *M. a. analoga*. Die gelbliche Nordküsten-Rasse benennen wir:

Meliphaga analoga flavida subsp. nov.

Typus: ♂ ad., Japen 450 m, 6. März 1931, G. Stein leg. Nr. 421.

Sehr ungleichmässig verteilt auf Neuguinea ist das Auftreten jener durch weisse statt gelbe Ohrbüschel ausgezeichneten Mutante, welche den Namen *Ptilotis albonotata* Salvad. erhalten hat. Unter 9 Exemplaren, die Herr Stein bei Manokwari sammelte, haben nicht weniger als 5 weisse Ohrbüschel, während alle 15 Exemplare aus Waigeu und 11 von Herrn Stein auf Jobi gesammelte Stücke durchweg gelbe Ohrbüschel besitzen. Ebenso häufig wie bei Manokwari tritt diese Mutante nach Salvadoris Angabe (*Orn. pap.* ii. p. 333) bei Naiabui in Süd-Neuguinea auf. Die Erscheinung, dass das Auftreten von Mutanten einen

lokalen Charakter hat und nicht in dem ganzen Verbreitungsgebiet einer Art oder Rasse zu beobachten ist, ist ja auch von vielen anderen Fällen bekannt.

Mageninhalt: Beeren, Insektenflügel (1291). Beeren (1280). Schwarze Kerne von Früchten (Manokwari 62). Früchte von Kirschengrösse (Jobi 421). Beeren (Jobi 281–283–336). Fruchtfleisch (Jobi 172).

Meliphaga notata sharpei (Rothsch. & Hart.).

Cf. Stresemann, *J. f. O.* 1925, pp. 225–226.

Gesammelt von: Waterstradt, Stein.

1275.	13. V.	♂3.	Fl. 88;	Gew. 25
1270.	11. .	♂2.	„ 91;	„ 28
1271.	13. V.	♂2.	„ 98;	„ 29
1274.	21. V.	♂2.	„ 87;	„ 26
1287.	10. V.	♂2.	„ 89,5;	„ 25,5
1273.	6. V.	♂2.	„ 91;	„ 29
1290.	22. V.	♂3.	„ 90;	„ 26
1284.	13. V.	♀0.	„ 84;	„ 26
1272.	10. V.	♀0.	„ 85;	„ 23,5
1269.	14. V	0	„ 82;	„ 27
1286.	14. V.	0	„ 81;	„ 26

Wie *Meliphaga analoga* variiert auch diese Art im Raume von Neuguinea in der Weise, dass die Population von Waigeu unterseits weniger gelblich ist als die Population von Jobi und dem Sepikgebiet, was besonders am äusseren Handrand auffällig ist, dessen Deckfedern bei Waigeuvögeln weisslicher, nicht so gelblich sind. Die Verschiedenheit ist aber zu gering, um eine Benennung zu rechtfertigen. Grössenunterschiede bestehen nicht.

Mageninhalt: Beeren, kleine Kerne, auch im Trakt (1269). Beeren (1287–1271). Blaue Beeren mit kleinen Kernen, auch im Trakt (1270).

Meliphaga virescens sonoroides (Gray).

Ptilotis sonoroides Gray, *Proc. Zool. Soc. Lond.* 1861, p. 428 (1861—Waigeu).

Gesammelt von: Wallace, Bernstein, Platen, Stein.

37.	3. II.	♂2.	Fl. 113	
35.	3. II.	♂2.	„ 108,5	Saonek.
39.	3. II.	♀1.	„ 111	„
38.	3. II.	♀1.	„ 97	„
36.	3. II.	♀1.	„ 104	„

Diese terratypische Serie ist sehr willkommen, da sie den sicheren Nachweis ermöglicht, dass zwischen Exemplaren aus Sorong, Manokwari und Jobi (Stein leg.) sowie von Aitape und Finschhafen (Dr. E. Mayr leg.) einerseits, Waigeuvögeln andererseits keinerlei Unterschied besteht. Offenbar haben sich diese an die Kokospalme gebundenen Vögel erst in jüngerer Zeit stark ausgebreitet.

Xanthotis chrysotis fusciventris Salvad.

Xanthotis fusciventris Salvadori, *Ann. Mus. Civ. Gen.* vol. vii, p. 947 (1876—Batanta).

Gesammelt von: Guillemard, Waterstradt, Stein.

1060.	9. VI.	♂3.	Fl. 105;	Gew. 47
1061.	21. V.	♂1.	„ 104,5;	„ 51

Exemplare von Batanta haben wir nicht gesehen, aber Salvadori fand keinen Unterschied zwischen drei Stück von Batanta und einem von Waigeu. Im Vergleich zu *X. ch. chrysotis*: auf der Unterseite fast ohne röstliches Phaeomelanin, statt dessen durch gelbes Lipochrom kräftig gefärbt, sodass Kropf, Brust und Vorderbauch grünlich gelb statt bräunlich rostfarben (mit schmalen gelben Säumen) erscheinen. Bauchseiten erdbraun statt rostbraun. Ganze Oberseite bei *fusciventris* viel grünlicher, weniger braun erscheinend infolge viel grösserer Breite der grünen Federsäume von Kopf und Rücken. (Die Rasse *meyeri* hat so gut wie gar kein Lipochrom, *philemon* noch weniger als *meyeri*.) Axillaren und Flügelbug bei *fusciventris* im wesentlichen lipochromatisch gelb, bei *chrysotis* im wesentlichen phaeomelanotisch rostfarben.

Xanthotis polygramma polygramma (Gray).

Ptilotis polygramma Gray, *Proc. Zool. Soc. Lond.* 1861, p. 429 (1861—Waigeu).

Gesammelt von: Wallace, Stein.

1267.	25. V.	♂3.	Fl. 81,5		
1213.	30. V.	♂2.	„ 80;	Gew. 22	
1264.	3. VI.	♂2.	„ 80;	„	24,5
1268.	30. V.	♂1.	„ 79;	„	24,2
1266.	30. V.	♀1.	„ 74,5;	„	20
1265.	2. VI.	♀1.	„ 72,3		

Die Nominatform scheint auf Waigeu beschränkt zu sein. Die deutlich verschiedene Rasse von Misol ist kürzlich von Hartert, Nov. Zool. Bd. 36, 1930, p. 49 als *X. p. kuehni* abgetrennt worden, und der Rasse des Vogelkopfes gebührt der Name *X. m. poikilosternos* A. B. Meyer. Vergleiche Hartert *l.c.* Weitere Rassengliederung siehe Mayr in *Mitteil. Zoolog. Mus. Berlin*, 1931, pp. 664–665.

Mageninhalt: Insekten (1267). 1 Spinne, Beeren (1264). Dunkelblaues Fruchtfleisch (1265).

Philemon novaeguineae novaeguineae (S. Müller).

Tropidorhynchus marginatus Gray, *Proc. Zool. Soc. Lond.* 1861, p. 429 (1861—Waigeu).

Gesammelt von: Wallace, Bruijn, Platen, Waterstradt, Stein.

1546.	12. V.	♂3.	Fl. 157;	Gew. 162;	Grossgefiedermauser.
1547.	4. VI.	♀2.	„ 155;	„ 148	
1545.	7. VI.	♀1.	„ 155;	„ 158;	"2 Eier."
1544.	4. VI.	♀.	„ 152;	„ 153	

Von Exemplaren aus Manokwari nicht zu unterscheiden. Das Jugendkleid ist ausgezeichnet nicht allein durch olivfarbene Aussensäume der Schwungfedern, sondern auch durch weisse Endsäume der Rückenfedern und einen (beim alten Vogel nur sehr schwach angedeuteten) Nackenring. Sehr bemerkenswert ist der Umstand, dass 1546 sehr stark vergrösserte Hoden hat, obwohl Flügel und Schwanz in Mauser sind.

Mageninhalt: Früchte und Samen von 2–3 mm Durchmesser (1546). Früchte und Flügeldecken von Käfern (Manokwari 76). Eine Spinne, viel Fruchtfleisch (Jobi 170). Fruchtfleisch und Beeren (Jobi 216). Schale von roten Früchten (Jobi 269). Beeren (Jobi 169).

Cinnyris jugularis frenata (S. Müller).

Gesammelt von : Beccari, Guillemard, Platen, Stein.

1225.	15. V.	♂3.	Fl. 56 ;	Gew. 8,8
1229.	31. V.	♂.	„ 56,5	
1230.	31. V.	♀1.	„ 53 ;	„ 7,5

Übereinstimmend mit einer Serie von 6 Stück (Stein leg.) aus Manokwari.

Cinnyris sericea cochrani Stres. & Pal.

Cinnyris sericeus cochrani Stresemann & Paludan, *O. M. B.* Bd. 40, 1932, p. 15 (1932—Waigeu).

Gesammelt von : Wallace, Guillemard, Platen, Stein.

1222.	4. VI.	♂2.	Fl. 57,5 ;	Gew. 7	
1223.	10. V.	♂2.	„ 58 ;	„ 8	
1221.	15. V.	♂2.	„ 58 ;	„ 7,2	
1224.	15. V.	♂2.	„ 56,5 ;	„ 7,5	
1228.	4. VI.	♂1.	„ 57		Flügelmauser.
1227.	9. VI.	♂1.	„ 55,5 ;	„ 6,3 ;	Noch Reste des I. Ja. Kl.
1226.	6. VI.	♂0.	„ 54 ;	„ 8	„ „ I. „
1219.	16. VI.	♂0.	„ 55 ;	„ 7,2 ;	juv.
1220.	30. V.	♂0.	„ 56 ;	„ 8	
1218.	10. V.	♀0.	„ 51 ;	„ 7	

Die Originalbeschreibung lautet wie folgt :

" ♂ ad. : Von *C. s. sericea* Less., der das Festland von Neuguinea mit Ausnahme des östlichsten Teiles der Nordküste, sowie Jobi bewohnt, unterschieden durch stahlblauen statt rotvioletten Schiller des Kehlschildes (betrachtet von oben bei Lichteinfall von vorn), sowie durch etwas geringere Grösse. Flügel : 9 ♂♂ 54–58 mm. (bei *sericea* 60–64 mm.), ♀ 51 mm. (bei *sericea* 51,5–53 mm.).

Typus : ♂ ad., Waigeu 15. Mai 1931, G. Stein leg. Nr. 1221.

Verbreitung : Waigeu."

Bei 3 ♂♂ von Misol (in der Zoologischen Staatssammlung München) schillert das Kehlschild ungefähr wie bei Manokwari- und Jobivögeln und ist deutlich verschieden von demjenigen der Waigeuvögel, welche bläulich (statt rötlich) violetten Schiller haben ; gleichzeitig aber unterscheiden sich die Misolvögel von Neuguineavögeln durch mattschwarze statt tief samtschwarze Färbung von Unterseite und Interscapulium. Flügellänge (nach Stresemann, *J. f. O.* 1913, p. 609) ♂♂ 58,5–58,5–59,5 ; ♀♀ 50–52,5–54–54 mm. Wir benennen die Rasse von Misol :

Cinnyris sericea olympia subsp. nov.

Typus in der Zool. Staatssamml. München, Nr. 14.716 : ♂ ad., Misol, August 1911, Dr. Tauern leg. Nr. 3.

Dicaeum pectorale S. Müller.

Gesammelt von : Wallace, Guillemard, Platen, Stein.

1419.	17. V.	♂3.	Fl. 51 ;	Gew. 7
1416.	13. V.	♂3.	„ 49 ;	„ 7
1415.	15. V.	♂2.	„ 49,5 ;	„ 6,2
1418.	2. VI.	♂2.	„ 50 ;	„
1411.	4. VI.	♂2.	„ 50 ;	„ 6

1414.	12. V.	♂2.	Fl. 49;	Gew. 6,5;	Flügelmauser.
1413.	31. V.	♂2.	„ 50;	„ 7,2	
1417.	17. V.	♂0.	„ 50;	„ 6,5	
1412.	2. VI.	♂0.	„ 50;	„ 6,8	
1421.	17. V.	♀2.	„ 45;	„ 5,9	
1420.	4. VI.	♀0.	„ 43;	„ 6,2	
1423.	17. V.	♀0.	„ 46;	„ 5,8	
1424.	15. VI.	♀0.	„ 48;	„ 6,1	
1422.	10. V.	♀0.	„ 45;	„ 5,1	

Nicht zu unterscheiden von vier Exemplaren (Stein leg.) aus Manokwari.

Melanocharis nigra pallida subsp. nov.

Gesammelt von: Wallace, Platen, Stein.

1479.	24. V.	♂2.	Fl. 63,5;	Gew. 14	
1481.	15. V.	♂2.	„ 64;	„ 12	
1484.	25. V.	♂0.	„ 62,5;	„ 12,8;	I. Ja. Kl.
1485.	8. V.	♀2.	„ 61;	„ 15,5	
1482.	25. V.	♀2.	„ 63;	„ 13,5;	Flügelmauser.
1483.	22. V.	♀1.	„ 63;	„ 15	„
1480.	24. V.	♀?	„ 64		

Wie so viele andere Arten auch, ist *Melanocharis nigra* auf Waigeu durch eine Rasse vertreten, bei der die olivfarbene Tönung der Neuguinearasse durch eine graulichere und lipochromärmere Tönung ersetzt wird. Die ganze Unterseite ist bei *M. n. pallida* sowohl in männlichen wie im weiblichen Geschlecht graulicher und blasser, nicht so düster olivgrünlich wie bei *M. n. nigra* von Misol und dem Vogelkopf.

Typus: ♂ ad. Waigeu, 15. Mai 1931, Stein leg. Nr. 1481.

Verbreitung: Waigeu.

♂ I. Ja. Kl. im wesentlichen dem ♀ ad. gleichend, aber der Oberkopf ist wie der Rücken olivgrün gefärbt, nicht wie beim ♀ ad. dunkler als dieser und mit bläulichem Metallschiller.

Mageninhalt: Fruchtfleisch (1479), Fruchtfleisch mit Kernen von ca. 3 mm. Durchmesser, im Trakt keine (1485). Fruchtfleisch mit weisslichen Samen (1483).

Cracticus cassicus (Bodd.).

Gesammelt von: Wallace, Bernstein, Bruijn, Guillemard, Platen, Stein.

1550. 10. V. ♂2. Fl. 179; Gew. 170; Flügelmauser.

Übereinstimmend mit Vögeln von Manokwari und vom Sepik.

Mageninhalt: Heuschrecken (1550). Fruchtkerne (Manokwari 139). Beeren mit gelbem Fleisch, 1 kleiner Käfer (Manokwari 103). Schwarze Kerne von Beeren (Manokwari 52). Früchte und Fliegen (Joib 302). Nur Beeren (Jobi 278).

Cracticus quoyi quoyi (Lesson).

Gesammelt von: Wallace, Bernstein, Guillemard, Platen, Stein (in Alcohol).

Pitohui kirhocephalus cerviniventris (Gray).

Rectes cerviniventris Gray, *Proc. Zool. Soc. Lond.* 1861, p. 430 (1861—Waigeu); Stresemann, *Mittl. Zool. Mus. Berlin*, Bd. 11, 1925, p. 414.

Gesammelt von: Wallace, Bruijn, Platen, Stein.

1108.	21. V.	♂3.	Fl. 100;	Gew. 61	
1106.	10. VI.	♂2.	„ 97;	„ 62,3	
1103.	27. V.	♂1.	„ 95;	„ 67	
1107.	20. V.	♂1.	„ 97;	„ 65	
1102.	22. V.	♂1.	„ 93;	„ 58;	Armschwingen in Mauser.
1110.	26. V.	♂0.	„ 94;	„ 60	
1105.	27. V.	♀2.	„ 97;	„ 62	
1109.	11. VI.	♀1.	„ 93;	„ 67,5	
1104.	22. V.	♀0.	„ 90,5;	„ 56	

Diese, eine der schärfst markierten endemischen Rassen von Waigeu, die fast schon als besondere Art betrachtet werden könnte, lebt auch auf der Insel Gemien. Sehr nahe steht ihr die etwas grössere und blassere Rasse *P. k. pallidus* van Oort von Batanta.[1] Über die Gliederung dieses ausserordentlich zur Rassenbildung neigenden Rassenkreises vergleiche Stresemann *l.c.* Die Waigeu-Rasse ist die kleinste von allen. Kein Färbungsunterschied zwischen den Geschlechtern.

Mageninhalt: Beeren, 1 Schnecke, Tausendfüssler, 1 Käfer (1106). Prall mit Fruchtfleisch gefüllt, dazwischen eine Schnecke und Reste von Tausendfüsslern (1103). Flügeldecken von Käfern, Fruchtfasern (1107). Grünes und rotes Fruchtfleisch (1110). Fruchtfasern mit schwarzen Kernen, 1 Gehäuseschnecke (1104).

Pitohui ferrugineus leucorhynchus (Gray).

Rectes leucorhynchus Gray, *Proc. Zool. Soc. Lond.* 1861, p. 430 (1861—Waigeu).

Gesammelt von: Wallace, Beccari, Guillemard, Platen, Stein.

1532.	22. V.	♂3.	Fl. 153		
1533.	22. V.	♂0.	„ 154;	Gew. 110	
1535.	22. V.	♂0.	„ 140;	„ 108	
1537.	1. VI.	♀1.	„ 144;	„ 105	
1534.	22. V.	♀1.	„ 145;	„ 117,5;	Flügelmauser.
1531.	25. V.	♀0.	„ 144,5;	„ 117	
1536.	25. V.	♀0.	„ 138;	„ 106	

Diese ausgezeichnete Rasse lebt ausser auf Waigeu auch auf Batanta. Sie unterscheidet sich von *P. f. ferrugineus* (Exemplare von Manokwari verglichen) sowohl durch die Färbung der Ober- und Unterseite als auch dadurch, dass Schnabel, Lauf, Zehen und Krallen nicht intensiv schwarz pigmentiert sind, sondern aller Melanineinlagerungen entbehren (Schnabel) oder doch wenigstens sehr schwach von Melanin gefärbt werden (Lauf, Zehen und Krallen). Die Grösse scheint beträchtlicher zu sein als bei Exemplaren von Manokwari, während bei *P. kirhocephalus* das Umgekehrte der Fall ist.

Mageninhalt: Käfer, Heuschrecken, Larven (1532). Insekten (1535–1531—Manokwari 160). Grosse Heuschrecken (1536). Insektenreste, 1 Beere (Manokwari 89).

[1] *Not. Leyd. Mus.* 29, 1907, p. 71. Von Mathews, *Syst. Av. Austr.*, versehentlich ausgelassen.

Myiolestes megarhynchus affinis Gray.

Myiolestes affinis Gray, *Proc. Zool. Soc. Lond.* 1861, p. 431 (1862 — "Gagie," Irrtum für Waigeu).

Gesammelt von: Wallace, Guillemard, Platen, Stein.

♂♂ ad. (13. V.–12. VI.)	Fl. 89,5²–90–93¹–94³–95–96³–97.
	Gew. 30–30,5–30,7–31–32²–32,5²–33–34²–36–40.
♂♂ juv. (14.–16. V.)	Fl. 85–88; Gew. 32–32,5.
♀♀ ad. (10.–20. V.)	Fl. 88,5–89²–89,5–90–90,5; Gew. 29,5–31²–32–33².

1 ♂ und 2 ♀♀ in Flügelmauser.

♂ und ♀ gleich gefärbt auch hinsichtlich des Schnabels, aber ♀ im Mittel kleiner als ♂. Aus der Reihe fällt ♂ I. Ja. Kl. Nr. 1085 mit einer Flügellänge von nur 85 mm. Wahrscheinlich ist der Jugendflügel etwas kürzer als der Altersflügel. Das I. Ja. Kl. ist kenntlich an den viel intensiveren Säumen der Schwungfedern und grossen Flügeldeckfedern.

Diese scharf markierte Rasse unterscheidet sich von ihrer geographischen Nachbarrasse *megarhynchus*, die schon am Westrand des Vogelkopfes lebt, durch das nahezu fehlende Phaeomelanin der Ober- und Unterseite; statt dessen sind Ober- und Unterseite bei *affinis* deutlich mit gelblichem Lipochrom getönt, das in Kombination mit Eumelanin die olivfarbenen Töne erzeugt. Dieses Vorherrschen des gelben Lipochromes unterscheidet *affinis* auffällig von *obscurus*, dem das Lipochrom völlig fehlt und bei dem auch das Phaeomelanin sehr stark zurücktritt. Auf Batanta lebt die nahe verwandte Rasse *M. m. batantae* Meise, *Abh. Ber. Mus. f. Tierk. Dresden* xvii, 1929, p. 18.

Mageninhalt: Insekten (1071–1079–1081). Heuschrecken (1075). Heuschrecken, Larven (1067). Schalen und Fleisch von Früchten (Jobi 351). Heuschrecken und Larven (Jobi 310). Flügel von Insekten (Jobi 443).

Pachycephala griseiceps waigeuensis subsp. nov.

Gesammelt von: Wallace, Beccari, Stein.

♂♂ (20. V.–12. VI.)	Fl. 78–80–80,5–81–82,5²–83–84–85,5–86.
	Gew. 18–21²–21,3–22,5–23,5²–24.
♂ juv. 23. V.	Fl. 80,5; Gew. 21.
♀♀ (20. V.–10. VI.)	Fl. 77,5–79–80,5–81–82².
	Gew. 21–21,1–21,5–22,5–25.
♀ juv. (20. V.–2. VI.)	Fl. 77–78²; Gew. 20–22.

2 ♂♂ ad. und 2 ♀♀ ad. in Flügelmauser, ♂ juv. in Flügelmauser.

Die Rassenbildung von *Pachycephala griseiceps* ist kürzlich von Hartert (Nov. Zool. 36, 1930, pp. 55–56) ausführlich behandelt worden. Wir haben zur Untersuchung einen Teil des Materials, das im Tring-Museum aufbewahrt wird, mit heranziehen können und vermögen uns seiner Gliederung nicht in allen Teilen anzuschliessen, gelangen vielmehr für das Gebiet des westlichen Neuguinea zu folgender Gruppierung:

1. *Pachycephala griseiceps griseiceps* Gray (terra typica Aru). Von Aruvögeln vermögen wir nicht zu trennen eine Serie aus Misol (7 Exemplare, Tauern leg.), eine Serie vom Arfakgebirge (5 Exemplare, Mayr leg.) sowie je einen Balg vom Aroafluss und vom Kotoi-District in Britisch Neuguinea. Wir vermuten daher, dass diese Rasse ausser über die Aruinseln und Misol auch über den Vogelkopf und längs der Südküste östlich bis zum Aroafluss, westlich bis zum

Beginn des *perneglecta*-Areals verbreitet ist. Die Rasse *squalida* Oust. (terra typica Amberbaki) ist unserer Ansicht nach identisch mit *griseiceps*.

2. *Pachycephala griseiceps waigeuensis* subsp. nov. Von *P. g. griseiceps* deutlich unterschieden durch völligen Mangel der bräunlichen Tönung der Vorderbrust und durch dunklere, graulichere, weniger bräunliche Ohrdecken. In der Färbung der Oberseite stimmt *waigeuensis* mit *griseiceps* gut überein.

Typus: ♂ ad. Waigeu, 3. Juni 1931, Stein leg. Nr. 1185.

Verbreitung: Waigeu.

3. *Pachycephala griseiceps jobiensis* A. B. Meyer. Diese Rasse ermangelt wie *waigeuensis* der bräunlichen Brustfärbung und ist ihr daher auf der Unterseite ziemlich ähnlich, aber die gelbe Färbung auf Brust und Bauch ist intensiver. Der Oberkopf ist bei *waigeuensis* mehr oliv, bei *jobiensis* mehr dunkelgrau getönt. Die Färbung der Ohrdecken ist bei beiden gleich. Der Rücken von *jobiensis* ist ein klein wenig grünlicher, weniger bräunlich als bei *waigeuensis* und merklich grünlicher als bei *griseiceps*.

Verbreitung: Jobi und Nordküste von Neuguinea zwischen Mamberano und Astrolabebai.

4. *Pachycephala griseiceps perneglecta* Hartert. Gekennzeichnet durch sehr starke Streifung der Körperseiten, sonst wie *griseiceps*. Terra typica, "Southern Snow Mountains." Mit der Urbeschreibung übereinstimmende Exemplare sammelte Herr Stein am Fuss des Weyland-Gebirges, wo sich *perneglecta* zwischen *griseiceps* Gray (= *rubiensis* Meise) und *jobiensis* A. B. Meyer einzuschieben scheint.

Hartert hat, *l.c.* p. 56, eine Rasse *subflavidior* beschrieben, die nach seiner Angabe von Takar bis Hollandia verbreitet ist und sich durch lebhaftes Gelb des Bauches und der Unterschwanzdecken, sowie durch braune Ohrdecken unterscheiden soll. Wir haben drei Stücke von der terra typica untersuchen können und vermögen die angegebenen Unterschiede nicht zu bestätigen, halten daher *subflavidior* für ein Synonym von *jobiensis*.

Mageninhalt: Insekten (1211–1216). Heuschrecken (1217).

Pachycephala phaeonota (S. Müller).

Gesammelt von: Bernstein, Bruijn.

Dieser auf kleinen Inselchen im Gebiet der Molukken und der westl. papuanischen Inseln weit verbreitete Vogel ist Herrn Stein ebenso wie *Lichmera argentauris* entgangen, vermutlich deswegen, weil *P. phaeonota* nur auf den der Hauptinsel vorgelagerten Inselchen zu treffen ist.

Artamus leucorhynchus papuensis Bonap.

Stresemann, *Nov. Zool.* xx, 1913, pp. 289–292; Hartert, *Nov. Zool.* xxxvi, 1930, p. 81.

Gesammelt von: Guillemard, Platen, Stein.

1016.	11. VI.	$♂_1$.	Fl. 141;	Gew. 50,5		
1015.	7. VI.	$♂_1$.	„ 132;	„ 48		
1014.	29. V.	$♂_1$.	„ 132,5;	„ 45	Flügelmauser.	
1018.	29. V.	$♂_1$.	„ 135;	„ 46	„	
1019.	7. V.	$♂_1$.	„ 134,5;	„ 37,5		
1017.	29. V.	$♀_0$.	„ 137;	„ 46,8		

Mageninhalt: Fliegende Insekten (1017).

Peltops blainvillei (Lesson & Garnot).

Gesammelt von : Wallace, Guillemard, Platen, Stein.

1158. 24. V. ♀. Fl. 93 ; Gew. 52 ; Jugendkleid.
Platen leg. 1884, ♀ ad. Fl. 96.

Dem jungen Vogel fehlt der weisse Rückenfleck (vergl. Salvadori, *Orn. Pap.* ii, p. 8).

Mageninhalt : Insekten.

Monarcha guttula guttula (Garnot).

Stresemann, *Arch. f. Naturgesch.* 89, 1923, A. 7, p. 96.

Gesammelt von : Wallace, Beccari, Guillemard, Waterstradt, Stein.

♂♂ (13.-23. V.)	Fl. 78-81²-81,5-82,5-83-85.
	Gew. 17²-18²-19-20²-20,5.
♀♀ (11. V.-10. VI.)	Fl. 75,5-77²-78-79³-81².
	Gew. 16,5-17²-18-18,5-18,8²-19,5-20,5.
♀ juv.	Fl. 74,5 ; Gew. 16.

3 ♂ und 1 ♀ in Grossgefiedermauser.

Wie aus den mitgeteilten Massen ersichtlich, gehören die Waigeuvögel zu der grösseren Rasse, die auch vom südlichen Vorland des Schneegebirges nachgewiesen wurde, nicht zur kleinen Rasse des Sepikgebietes, bei welcher die Flügellänge folgendermassern variiert : ♂♂ 76–81, ♀♀ 71–79. Die Nomenklaturfrage kann noch immer nicht entschieden werden.

Mageninhalt : Insekten (1035, 1030, 1040).

Monarcha alecto chalybeocephalus (Garnot).

Gesammelt von : Wallace, Beccari, Platen, Stein.

996.	19. VI.	♂₃.	Fl. 90 ;	Gew. 24,2		
980.	8. VI.	♂₂.	„ 88 ;	„ 23		
989.	14. VI.	♂₂.	„ (87)	„ 24	Flügelmauser.	
982.	12. VI.	♂₁.	„ 89 ;	„ 23	„	
995.	10. VI.	♂₁.	„ 90 ;	„ 24	„	
981.	16. V.	♂₁.	„ 91 ;	„ 25	„	
984.	11. V.	" ♂ ? "	„ 82 ;	„ 23		
983.	11. VI.	♂.	„ 84 ;	„ 21,5		

Nr. 984 und 983 sind ♂♂ im I. Ja. Kl., die noch den kurzen Jugendflügel tragen und durchaus weibchenähnlich gefärbt sind bis auf den Umstand, dass die Unterseite nicht reinweiss, sondern mit rostfarbenem Anflug (mit Ausnahme der Kehle) versehen ist. Kein Unterschied gegenüber einer Serie von Jobi. Ebenso gefärbt wie diese beiden ♂♂ ist ein ♀ I. Ja. Kl. von Numfor (Stein leg. Nr. 285).

Monarcha chrysomela melanotus Sclater.

Gesammelt von : Wallace, Beccari, Platen, Waterstradt, Stein.

♂♂ (10. V.-11. VI)	Fl. 71-72²-73³-74²-74,5-75-75,5.
	Gew. 15-15,2-15,5-15,6-16,5-17²-17,5²-17,6.
♀♀ (16. V.)	Fl. 70,5-73 ; Gew. 14².
♀ juv. 16. (V.)	Fl. 67 ; Gew. 13,5. Schnabelbasis hell.

3 ♂ in Flügelmauser. Übereinstimmend mit 1 Stück aus Momi, Dr. Mayr leg.

Mageninhalt : Insekten (1173 und 1178).

Arses telescophthalmus batantae Sharpe.

Arses batantae Sharpe, *Not. Leyd. Mus.* vol. i, p. 20 (1879—Batanta).

Gesammelt von: Beccari, Bruijn, Guillemard, Platen, Waterstradt, Stein.

♂♂ (11.V.–13.VI.) Fl. 85–86,5–87,5²–89³.
Gew. 21³–21,5–23–23,5².
♀♀ (20. V.–13. VI.) Fl. 82,5–83³–85; Gew. 18,5–20–22–23.
♀ juv. (23. V.) Fl. 80,5. Schnabelbasis hell.
1 ♂ noch mit einigen braunen Federn. 1 ♂ in Flügelmauser.

Diese gut ausgeprägte Rasse ist beschränkt auf die Inseln Waigeu und Batanta. Von ihrem Nachbarn *A. t. telescophthalmus*, der die Insel Misol und den Vogelkopf von Neuguinea bewohnt, unterscheidet sie sich durch folgende Merkmale: (1) Die Grösse ist viel bedeutender, Flügel *batantae* ♂ 84–92, ♀ 82–87; *telescophthalmus* ♂ 79–86, ♀ 76–82 mm. (2) Durch den breiteren blauen Lidkamm beider Geschlechter. (3) Durch die intensivere Kastanienfarbe auf Rücken, Kehle und Brust des Weibchens.

Im I. Ja. Kl. ist das ♂ wie das alte ♀ gefärbt.

Mageninhalt: Insekten (1023 und 1184, Manokwari 158, Jobi 212, 472, 419, 285, 214, 236, 292). 1 Heuschrecke (Jobi 207).

Rhipidura leucophrys melaleuca (Quoy & Gaimard).

Gesammelt von: Guillemard, Platen, Stein.

998.	6. V.	♀ juv.	Fl. 104; Gew. 27,5	
997.	18. V.	"♀?"	„ 97	I. Ja. Kl.

Rhipidura rufiventris gularis S. Müller.

Gesammelt von: Wallace, Guillemard, Platen, Waterstradt, Stein.

♂♂ (10. V.–11. VI.) Fl. 84–87²–88–90⁵–91²–91,5.
Gew. 14,7–15³–16¹–17²–17,2–17,5.
♀♀ (11. V.–13. VI.) Fl. 79–82,5–83–83,5–84²–84,5–86–87.
Gew. 13,5–14,6–15²–16³–16,5–16,6.
1 ♀ in Grossgefiedermauser.

Übereinstimmend mit einer Serie von Jobi und dem Sepikgebiet bis auf den Umstand, dass Stücke von dem letzteren Fundort etwas grössere weisse Endflecken am äusseren Steuerfederpaar haben und häufig auch an den Spitzen des benachbarten Paares einen kleinen weissen Fleck zeigen, der an Waigeuvögeln nur selten und dann nur andeutungsweise auftritt.

Rhipidura rufifrons squamata Müll. & Schleg.

Rhipidura griseicauda Salvadori, *Ann. Mus. Civ. Gen.* vol. vii, p. 924 (1876—Waigeu).

Gesammelt von: Bruijn.

Auf Waigeu ist im Februar 1874 ein ♀ von Bruijns Sammlern erbeutet worden. Ausserdem von Salawati, Aru, Pulu babi (Aruinseln), den Keiinseln, der Inselkette zwischen Keiinseln und Seran, sowie von Banda bekannt, also wohl auf ganz kleine Inselchen beschränkt, wie *Monarcha cinerascens*, *Pachycephala phaeonota*, *Lichmera argentauris* und *Halcyon sauropbaga*: typische Beispiele für eine Verbreitung über Meeresstrecken hinweg!

Muscicapa griseosticta (Swinh.).

Gesammelt von : Guillemard.

Dieser südost-sibirische Brutvogel scheint nur ausnahmsweise sein Winterquartier bis in das papuanische Gebiet auszudehenen. Er wurde hier gefunden in Andai 7. IV. 1870 (Bruijn) ; Jobi 26. II. 1931 ♀$_0$ (Stein Nr. 340) ; Manokwari 13. II. 1931 ♀$_2$ (Stein Nr. 144) ; 2 ♂♂ Pigeon Island in der Mafiagruppe, October 1896 (W. Doherty) ; Misol 8. XII. 1883 (Guillemard).

Poecilodryas hypoleuca steini subsp. nov.

Gesammelt von : Wallace, Guillemard, Waterstradt, Stein.

1236.	20. V.	♂$_3$.	Fl. 81,5 ;	Gew. 21		
1231.	11. VI.	♂$_3$.	„ 80 ;	„ 23,5		
1234.	10. VI.	♂$_2$.	„ 79,5 ;	„ 19		
1232.	13. VI.	♂$_2$.	„ 82,5 ;	„ 22	;	Flügelmauser.
1239.	27. V.	♂$_2$.	„ 85 ;	„ 21		
1240.	23. V.	♂$_2$.	„ 80 ;	„ 22,5		
1235.	8. VI.	♂$_1$.	„ 80,5 ;	„ 22,1		
1233.	8. VI.	♂$_1$.	„ 82,5 ;	„ 22		
1238.	3. VI.	♂$_0$.	„ 81 ;	„ 20,5	;	Flügelmauser.
1237.	23. V.	♀$_0$.	„ 74 ;	„ 15		

Von *P. h. hypoleuca* (terra typica Manokwari) auffällig unterschieden durch bräunlich schwarze statt kohlschwarze Oberseite und durch geringere Ausdehnung des weissen Flügelspiegels, besonders an den Armschwingen. Das ♀ ist auf der Oberseite noch heller gefärbt als das ♂, nämlich dunkel erdbraun.

Typus : Waigeu ♂ 8. Juni 1931, Stein leg. Nr. 1233.

Verbreitung : Waigeu.

Microeca flavovirescens Gray.

Gesammelt von : Platen, Stein.

1159.	23. V.	♂$_2$.	Fl. 85 ;	Gew. 15,5		
1162.	25. V.	♂$_2$.	„ 80,5 ;	„ 27,5		
1170.	10. VI.	♂$_2$.	„ 83 ;	„ 16,3		
1166.	13. V.	♂$_2$.	„ 83,5 ;	„ 17	;	Flügelmauser.
1196.	27. V.	♂$_2$.	„ 83 ;	„ —		„
1165.	26. V.	♂$_2$.	„ 82 ;	„ 17		
1188.	22. V.	♂$_1$.	„ 82 ;	„ 16,5		
1161.	15. VI.	♂$_2$.	„ 81 ;	„ 15		
1169.	20. V.	♂$_0$.	„ 81,5 ;	„ 17		„
1164.	23. V.	♀$_2$.	„ 76 ;	„ 14		
1167.	9. VI.	♀$_1$.	„ 74,5 ;	„ 14,5		„
1160.	24. V.	♀$_1$.	„ 79 ;	„ 15		
1199.	27. V.	♀$_1$.	„ 75,5 ;	„ —		„
1163.	23. V.	♀$_0$.	„ 76 ;	„ 15	;	juv.
1168.	9. VI.	♀$_0$.	„ 76 ;	„ 16		

Nr. 1163 beendet die Mauser aus dem Jugendkleid ins erste Ja. Kl. Soweit Reste des ersten Ja. Kl. noch erhalten sind, entsprechen sie der Beschreibung von Og. Grant (*Ibis, Suppl.* ii, 1915, p. 173). Es sei noch hinzugefügt, dass die Spitzen der Hand- und Armschwingen und ihrer Deckfedern blass isabellfarben sind und der Unterschnabel schwarz ist, während er beim erwachsenen Vogel blass gelblich gefärbt ist.

Verglichen mit einer Serie von Jobi sind die Waigeuvögel auf Ober- und Unterseite etwas weniger gelblich getönt, analog dem Befund bei *Meliphaga analoga*, *M. notata* und anderen. In der Grösse stimmen die Serien von Waigeu und Jobi überein, während 30 Exemplare vom Sepikgebiet im Mittel kurzflügliger sind und im Maximum eine Flügellänge von 82 mm erreichen.

Mageninhalt : 1 Heuschrecke (1161), Insekten (1199), Jobi (482, 386).

Gerygone chrysogaster neglecta Wallace.

Gerygone neglecta Wallace, *Proc. Zool. Soc. Lond.* p. 475 (1865—Waigeu).
Cryptolopha waiginensis Hartert, *Bull. B.O.C.* 13, p. 70 (1903—Waigeu).
Meise, *Nov. Zool.* xxxvi, 1931, p. 342.

Gesammelt von : Wallace, Waterstradt, Stein.

♂♂ (10. V.–13. VI.) Fl. 50–51,5–52^{3}–53^{4}–53,5^{3}–54^{5}–55^{4}–56^{2}–57.
Gew. 6,1–7^{4}–7,1–7,2^{4}–7,5^{5}–7,6–7,8^{3}–8–8,5–8,7.
♀♀ (12. V.–12. VI.) Fl. 49–49,5–50–50,5–51^{6}–51,5–52,5–53,5.
Gew. 6,3–6,5–7^{2}–7,1–7,4–7,5^{3}–7,7–8^{2}.
4 ♂♂ in Flügelmauser.

Diese Rasse ist auf Waigeu beschränkt. Ihre nächsten Verwandten sind *G. ch. notata* Salvad. von Misol und dem Vogelkopf, sowie *virescens* Blyth von der Onin Halbinsel (SW-Neuguinea) bis zur Triton-Bai und dem Südrand der Geelvink-Bai. Über die Beziehungen zu *chrysogaster* Gray, welche zuerst von Meise erkannt worden sind, vergl. diesen Autor *l.c.*

Gerygone chloronota meisei Stres. & Pal.

Gerygone chloronota meisei Stresemann und Paludan, *O. M. B.* Bd. 40, 1932, p. 16 (1932—Waigeu)

Gesammelt von : Stein.

1429.	11. VI.	♂$_{2}$.	Fl. 49 ;	Gew. 5,9	
1437.	10. V.	♂$_{2}$.	„ 47 ;	„ 6,5	
1429.	16. V.	♂$_{2}$.	„ 46,5 ;	„ 6,2 ;	" Schnabel schwarz, Füsse bleifarben."
1430.	4. VI.	♂$_{2}$.	„ 49 ;	„ 6,5	
1426.	4. VI.	♂$_{1}$.	„ 48,5 ;	„ 6,3	
1440.	21. V.	♂$_{1}$.	„ 49 ;	„ 6,1	
1436.	17. V.	♂$_{1}$.	„ 49 ;	„ 5,5	
1439.	11. VI.	♂$_{0}$.	„ 48 ;	„ 5,8 ;	Schnabelbasis hell.
1428.	26. V.	♀$_{0}$.	„ 45,5 ;	„ 6	

Die Originalbeschreibung lautet wie folgt :

" Aus dem papuanischen Gebiet kannte man *Gerygone chloronota* bis vor kurzem nur von den Aru-Inseln und von den Bergen des östlichen Neuguinea. Die Erbeutung eines Exemplares bei Siwi im Arfakgebirge durch Dr. E. Mayr (1928) bildete eine Ueberraschung. Noch unerwarteter war der Herrn Stein geglückte Nachweis, dass die Art auch auf Waigeu lebt. Die Kennzeichen der dortigen Rasse sind folgende :

Am ähnlichsten *Gerygone chloronota aruensis* Büttikofer (die nicht zum Vergleich vorliegt), aber Oberkopf dunkler grau (Chaetura Drab, Ridgway 1912, Tab. 46). Zügel und Ohrdecken ganz leicht braun getönt, was Büttikofer auch angibt. Ein Vergleich von Aru- und Waigeustücken wird wohl noch andere Unterschiede aufdecken. Beide Formen unterscheiden sich jedenfalls von *cinereiceps* (7 Stück, darunter den Typus von *placida* Madarász, verglichen) durch fast reines Weiss des Unterkörpers, der bei der genannten Rasse immer

deutlich rahmfarben bis grau getönt ist. Seiten des Halses und Körpers wie bei *cinereiceps*, Oberkopf reiner grau, weniger braun. Grün des Oberkörpers bei der neuen Form weniger gelb, etwa Warbler Green (Tab. 4). Kleiner als *cinereiceps*. Flügel ♂ ad. 46,5, 47, 49 mm. (gegen 49–52 mm.), ♀ 45,5 mm. Schnabel länger. Culmen 9–9,5 mm. 4. und 5. Schwinge am längsten.

Typus: ♂ ad., Waigeu 11. Juni 1931, G. Stein leg. Nr. 1429.

Verbreitung: Waigeu.

Wir benennen diese neue Rasse nach Herrn Dr. W. Meise, dem verdienten Monographen der Gattung *Gerygone*, der auch die obenstehende Diagnose entworfen hat."

Gerygone magnirostris cobana (Mathews).

Zosterops fusca Bernstein, *J. f. O.* Bd. 12, p. 406 (1864—Waigeu). Nec *Ptilotis fuscus* Gould 1838 = *Gerygone fusca* (Gould).

Ethelornis magnirostris cobana Mathews, *Bull. Brit. Ornith. Club*, 47, p. 40 (1926—nomen novum pro *Zosterops fusca* Bernstein).

Gesammelt von: Bernstein, Stein.

1432.	14. VI.	♂2.	Fl. 57;	Gew. 10	
1434.	17. VI.	♂2.	„ 58;	„ 8,5	
1435.	15. VI.	♂2.	„ 59;	„ 9	
1431.	13. VI.	♂2.	„ 56;	„ 9;	" Füsse bleigrau."
1433.	7. VI.	♂1.	„ 58;	„ 9,1	
1438.	8. VI.	♂0.	„ 58,5;	„ 9,5	

Herr Dr. Meise, dem wir drei der obigen Exemplare zur Untersuchung zusandten, äussert sich über das Ergebnis wie folgt: " 3 ♂ ad. mit einer Flügellänge von 56, 58, 59 stechen durch ihre fast weisse Unterseite von allen anderen Rassen ab, von der nächstwohnenden *conspicillata* (1 Stück von Manokwari, der terra typica, Stein leg., verglichen) durch weniger rahmfarben getönten Unterkörper und geringere Ausdehnung des bräunlichen Anfluges an den Weichen, der keine Spur einer gelblichen Beimischung zeigt. Das einzige ad. von Kapaur hatte ich wegen der braunen Oberseite an *conspicillata* angeschlossen. Der grünere Oberkörper der von Stein erlegten Stücke beweist die Unwichtigkeit dieses Merkmales, das ja auch bei *affinis* in ähnlicher Weise variiert. Daher ergibt sich folgende Rasseneinteilung für das westliche Neuguinea (vergl. Nov. Zool. 36, p. 335 ff.):

mimikae Og. Grant: Südwestneuguinea, westwärts wenigstens bis Kapaur.

conspicillata (Gray): Unterseite etwas heller, Weichen gelblicher: Vogelkopf.

affinis A. B. Meyer: Weichen noch gelber: Gebiet der Geelvink-Bai von Passim süd-und ostwärts, Jobi und Nord-Neuguinea östlich davon.

cobana (Mathews): Unterkörper fast weiss. In der Kropfgegend leicht rahmfarben. Weichen in geringer Ausdehnung bräunlich, nicht gelblich getönt: Waigeu."

Mageninhalt: Insekten (1433).

Gerygone palpebrosa palpebrosa Wallace.

W. Meise, *Nov. Zool.* xxxvi, 1930, pp. 330–331.

Gesammelt von: Waterstradt, Stein.

1427.	13. VI.	♂3.	Fl. 55;	Gew. 8,1
1020.	27. V.	" ♂0."	„ 52,5;	„ 7,5 (♀?)

" Diese beiden Stücke zeigen, dass nach der Breite des schwarzen Stirnstreifs keine Trennung innerhalb dieser Subspecies (vgl. NOV. ZOOL. xxxix, p. 331) angängig ist. Waterstradts Stück hat schmalen, statt breiten Streif (Praeparation und individuelle Variation). Das Grün des Oberkörpers ist hell wie bei Aru-Stücken. Es bleibt also höchstens die Grösse als Unterscheidungsmerkmal, da das ♂ 55, das ♀ 52,5 mm. Flügellänge hat, also zu den Massen der grösseren nördlichen Population passt." (Dr. W. Meise in litt.)

Machaerirhynchus flaviventer albifrons Gray.

Machaerirhynchus albifrons Gray, *Proc. Zool. Soc. Lond.* 1861, p. 429 (1861—Waigeu, Misol).

Gesammelt von : Platen, Waterstradt, Stein.

♂♂ (20. V.–10. VI.) Fl. 55,5–58–58,5²–59²–59,5.
Gew. 9,5–10,2–10,3–10,5.
♀♀ (22. V.–11. VI.) Fl. 53–54²–56–59.
Gew. 9,5²–9,8–10–10,5.
2 ♂ in Flügelmauser.

Mit einer Serie aus Siwi (Arfak-Gebirge) übereinstimmend.
Mageninhalt : Insekten (1487, 1499, 1498, 1486, 1478).

Crateroscelis **murinus capitalis** Stres. & Pal.

*Craterosceli*s *murinus capitalis* Stresemann & Paludan, *O. M. B.* Bd. 40, p. 14 (1932—Waigeu).

Gesammelt von : Wallace, Stein.

1467.	10. VI.	♂.	Fl. 58 ;	Gew. 14,6
1471.	25. V.	♂₁.	„ 58 ;	„ 13
1468.	10. VI.	♂₀.	„ 56 ;	„ 13,3
1469.	26. V.	♂.	„ 55 ;	„ 13
1470.	12. VI.	♀₀.	„ 54,5 ;	„ 12,5
1466.	24. V.	♀₀.	„ 52,5 ;	„ —

Die Originalbeschreibung lautet wie folgt :

" ♂ ad. : Unterscheidet sich von *C. m. murinus* Sclater (terra typica restr. Lobo-Bai, S. Müller leg.) durch die Färbung des Oberkopfes, der nicht mattschwarz, sondern sehr dunkel olivbraun ist, fast genau von demselben Ton wie beim ♀ von *C. m. murinus*, und durch etwas geringere Grösse. Geschlechter gleichgefärbt. Flügel ♂ 56–58 mm. (bei *murinus* 60–63,5 mm.), ♀ 52,5–54,5 mm. (bei *murinus* 54–58 mm.).

Typus : ♂ ad., Waigeu 25. Mai 1931, G. Stein leg. Nr. 1471.

Verbreitung : Waigeu."

Sericornis spilodera ferruginea Stres. & Pal.

Sericornis spilodera ferruginea Stresemann & Paludan, *O. M. B.* Bd. 40, p. 16 (1932—Waigeu).

Gesammelt von : Stein.

1446.	25. V.	♂₂.	Fl. 58 ;	Gew. 10,1	
1445.	9. VI.	♂₀.	„ 59 ;	„ 10,2	
1441.	22. V.	♀₁.	„ 53 ;	„ 9,5	
1443.	8. VI.	♀₁.	„ 55 ;	„ 9	
1544.	22. V.	♀₁.	„ 53 ;	„ 10 ;	juv.
1442.	10. VI.	?.	„ 58 ;	„ 10,5	

Die Originalbeschreibung lautet wie folgt :

" *Sericornis* (' *Aethomyias* ')[1] *spilodera* war bisher nur vom Festland Neuguineas bekannt. Herr Stein entdeckte sie auch auf Japen (Jobi) und Waigeu. Während die Rasse von Japen mit *S. s. spilodera* Gray übereinstimmt (verglichen mit einer Serie vom Sepik-Gebiet), weicht die Waigeu-Rasse stark ab, und zwar durch folgende Merkmale :

Im Vergleich zu *spilodera* ♂ ist der Oberkopf in beiden Geschlechtern nicht mattschwarz, sondern röstlich oliv, die Stirn hell röstlich statt schwarz. Die Färbung des Oberkopfes geht allmählich in die des Rückens über, der etwas mehr gelblich oliv, weniger graulich oliv ist als bei *spilodera*. Ohrdecken und Augenumgebung fahl röstlich, etwas heller als die Stirn, nicht schwärzlich wie bei *spilodera*. Längsfleckung von Kehle und Brust viel weniger scharf und schmaler, in der Regel nur als schmaler verloschener schwarzgrauer Schaftstrich und nicht als schwarzer Tropfenfleck ausgebildet. Geschlechter gleichgefärbt, während sie bei *spilodera* hinsichtlich des Oberkopfes deutlich verschieden sind. Flügel ♂ 58–59, ♀ 53–55 mm.

Typus : ♂, Waigeu 25. Mai 1931, G. Stein leg. Nr. 1446.

Verbreitung : Waigeu."

Mageninhalt : Insekten (1446, Jobi : 359, 424, 533).

Motacilla cinerea caspica (Gm.).

Gesammelt von : Guillemard 22.–29. X. 1883).

Coracina novaehollandiae melanops (Lath.).

Gesammelt von : Stein.

1610. 21. V. ♀. Fl. 186

Zugvogel aus Australien.

Coracina lineata axillaris Salvad.

Gesammelt von : Platen, Stein.

1054.	2. VI.	♂1.	Fl. 143 ;	Gew. 74
1057.	27. V.	♀1.	„ 131 ;	„ 65,5
1059.	2. VI.	♀1.	„ 133 ;	„ 74
1058.	26. V.	♀1.	„ 131,5 ;	„ 70

Zum Vergleich konnten nur 2 ♀♀ vom Sattelberg benutzt werden, die an Kehle und Brust etwas heller grau sind als die ♀♀ von Waigeu. Das Material reicht indessen zur Entscheidung der Frage, ob hier geographische Variation vorliegt, nicht aus, umsomehr als die beiden ♀♀ vom Sattelberg untereinander ziemlich verschieden gefärbt sind : bei dem einen ist die Brust weiss, schwarz und grau quergebändert, bei dem anderen im wesentlichen nur schwarz und weiss quergebändert.

Edolisoma melan waigeuense Stres. & Pal.

Edolisoma melan waigeuense Stresemann & Paludan, *O. M. B.* Bd. 40, p. 17 (1932—Waigeu).

Gesammelt von : Guillemard, Stein.

1056.	23. V.	♂1.	Fl. 126 ;	Schw. 96 ;	Gew. 63 ; Schwanzmauser.
1047.	21. V.	♀2.	„ 121 ;	„ 88,5 ;	„ 53

[1] Mit Meise (*Nov. Zool.* 36, 1931, p. 319) sind wir der Ansicht, dass die Gattung *Aethomyias* nicht aufrechterhalten werden kann.

Die Originalbeschreibung lautet wie folgt :

" Im männlichen Geschlecht ist diese neue Rasse nicht zu unterscheiden von *E. m. melan* (Less.). Das ♀ von *E. m. waigeuense* ist deutlich gekennzeichnet durch weit voneinander abstehende schmale schwarze Querbänder der rostfarbenen Federn von Brust- und Bauchseite, die sich gegen die Mitte des rostfarbenen Unterkörpers zu vereinzelten schwarzen Flecken auflösen. Bei *E. m. melan* finden sich nur gelegentlich Spuren solcher Querbänderung an einigen verdeckten Federn der Bauchseite (♀ Sepik-Gebiet : Lordberg, Dr. Bürgers leg. Nr. 820). Flügel ♂ 126, ♀ 121 mm.

Typus : ♀ ad., Waigeu 21. Mai 1931, G. Stein leg. Nr. 1047.

Verbreitung : Waigeu."

Edolisoma tenuirostre nehrkorni Salvad.

Edoliisoma nehrkorni Salvadori, *Orn. Pap. Aggiunte*, ii, p. 91 (1890—Waigeu) ; Salvadori, *Ibis*, 1886, p. 152.

Gesammelt von : Platen.

Es handelt sich hier zweifellos um eine Form der *tenuirostre*-Gruppe und nicht um einen Vertreter der *ceramense*-Gruppe. Das geht sowohl aus Salvadoris Angabe : " Ohrdecken und Kehle glänzend schwarz," als auch aus der beträchtlichen Grösse des Typus und bisherigen Unikums (Fl. 123 mm.) hervor.

Edolisoma ceramense incertum (A. B. Meyer).

Gesammelt von : Stein.

1051.	27. V.	♂1.	Fl. 116 ;	Gew. 57	
1052.	31. V.	♂1.	„ 113 ;	„ 62 ;	Flügelmauser.
1055.	31. V.	♂1.	„ 114 ;	„ 59	
1045.	1. VI.	♂1.	„ 112 ;	„ 56 ;	Mauser aus I. Ja. Kl.
1049.	16. VI.	♀2.	„ 112 ;	„ 67 ;	Flügelmauser.
1046.	6. VI.	♀0.	„ 109 ;	„ 61	
1048.	3. VI.	♀0.	„ 110,5 ;	„ 51 ;	Mauser aus I. Ja. Kl.
1050.	1. VI.	♀0.	„ 113 ;	„ 58	
1053.	3. VI.	♀.	„ 115 ;	„ 50	„ „ „

Die *ceramense*-Gruppe war bisher von keiner der westpapuanischen Inseln bekannt. Herr Stein wies sie von Waigeu in einer Rasse nach, die der von Jobi beschriebenen Form *E. c. incertum* A. B. Meyer sehr nahe steht, aber in folgender Hinsicht von ihr abweicht. ♂ ad. : Die graue Färbung etwas heller als bei *incertum*, die Kehle wie die übrige Unterseite gefärbt und nicht wie bei *incertum* schwärzlich verdüstert. ♀ ad. : Unterseite mit schwachen Andeutungen einer weissen Bänderung, die bei den beiden zum Vergleich benutzten ♀♀ vom Sepikgebiet völlig fehlt.

Das ♀ ist etwas heller grau gefärbt als das ♂ und hat hellere Ohrdeckfedern mit weisslichen Schäften. Bei einem ♀ (Nr. 1048) fehlt dieses letzte Merkmal.

1050 trägt auf der Unterseite einfarbig blaugraue Federn mit zwei schwarzen und zwei weissen Querbinden, zu denen noch die Andeutung einer dritten schwarzen Binde hinzukommen kann (Hemmungskleid ?).

Mageninhalt : Riesige Larven (1051), Heuschrecken (1055, 1046, 1049), Insekten (1048, 1050).

Lalage atrovirens atrovirens (Gray).

Gesammelt von : Stein.

979.	23. III.	♂1.	Fl. 101 ;	Gew. 32
978.	26. III.	♀0.	„ 96,5 ;	„ 33

Bisher im Gebiet der westlichen papuanischen Inseln nur von Misol und Salawati bekannt. Die beiden Waigeustücke sind nicht zu unterscheiden von einer Serie aus dem Sepikgebiet.

Mageninhalt : rotes und grünes Fruchtfleisch (1979), rotes faseriges Fruchtfleisch mit pfeffergrossen schwarzen Kernen (978).

Hirundo tahitica frontalis Quoy & Gaimard.

Gesammelt von : Platen, Stein.

1455.	12. VI.	♂1.	Fl. 105 ;	Gew. 13,8	
1457.	15. VI.	♂0.	„ 108 ;	„ 15,4 ;	Flügelmauser.
1456.	13. VI.	♀0.	„ 105,5 ;	„ 15	„
1454.	14. VI.	♀0.	„ 106,5 ;	„ 13,5 ;	juv.

Übereinstimmend mit 7 Exemplaren aus Halmahera und 7 aus Makassar (Süd-Celebes). Die javanische Rasse *javanica* scheint durch die Konstanz einer etwas heller rotbraunen Stirnbinde unterschieden zu sein.

Pitta sordida novaeguineae Müll. & Schleg.

Gesammelt von : Bernstein.

Pitta mackloti mackloti Temm.

Gesammelt von : Bernstein, Beccari, Bruijn, Guillemard, Platen, Stein.

1117.	1. VI.	♂2.	Fl. 102 ;	Gew. 83
1114.	25. V.	♂2.	„ 105 ;	„ 86
1111.	8. VI.	♀3.	„ 107 ;	„ 82
1113.	1. VI.	♀2.	„ 106 ;	„ 90
1116.	27. V.	♀2.	„ 102,5 ;	„ 95
1115.	20. V.	♀2.	„ 104 ;	„ 81
1112.	25. V.	♀1.	„ 104,5 ;	„ 91

Die Farbe des Nackens ist bei allen Waigeuvögeln ausgesprochen bräunlich und nicht so rot wie bei *habenichti*. Ein Exemplar aus Manokwari hat einen etwas röteren Nacken als die Waigeuvögel. Wir sehen jedoch keinen Anlass, einen neuen Namen zu geben.

Mageninhalt : Kleine Insekten (1113), 1 Puppe ca. 3 cm. lang, 1 Schnecke, Insekten (1115), Grosse weisse Larve, weich (1112), Larven und kleine Käfer (Jobi 190), 1 Heuschrecke, 1 weisse Larve, 1 Tausendfüssler von 11 cm. Länge (Jobi 313). Graue breiartige Masse (Jobi 345), Käferlarve, Chitin (Jobi 320), Flügeldecken von Käfern (Jobi 235).

Hemiprocne mystacea mystacea (Lesson).

Gesammelt von : Bruijn, Guillemard, Platen, Stein.

1155.	29. V.	♂1.	Fl. 225 ;	Gew. 79
1156.	14. VI.	♀1.	„ 229 ;	„ 75

Mageninhalt : 1 grosse Hymenoptere mit Stachel (1156).

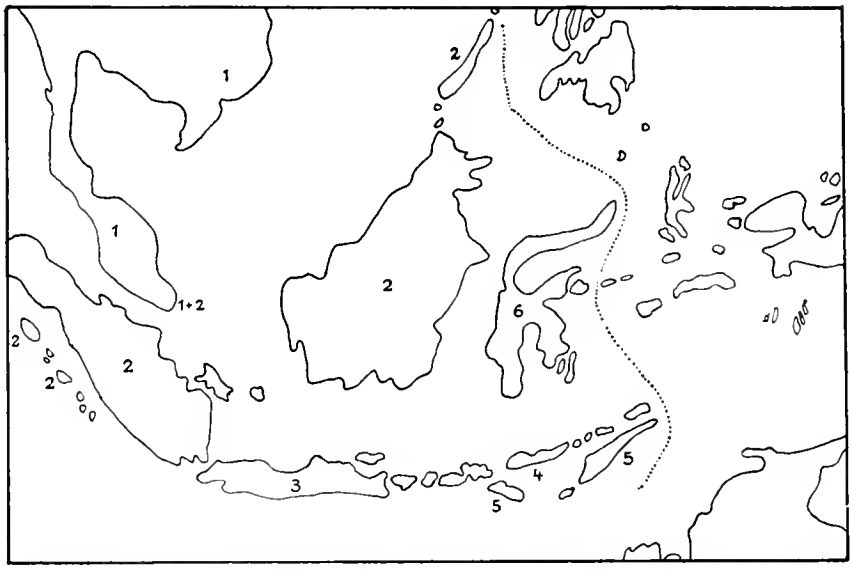
Collocalia esculenta subsp.

Gesammelt von : Bernstein, Stein.
Siehe unter Numfor !

Collocalia vanikorensis waigeuensis subsp. nov.

Gesammelt von : Stein.

In seiner Revision der Gattung *Collocalia* (*Mitteil. Zool. Mus. Berlin*, Bd. 12, Heft 1 und 2, 1925–26) hat Stresemann den Versuch gemacht, alle *Collocalia*-Formen in 6 Rassenkreise zusammenzufassen. Dass dieser Versuch nicht restlos geglückt sei und die Zahl der Formenkreise eine grössere sein müsse, hat sich bald darauf ergeben, und Stresemann hat daher bei der Revision der westmalayischen Salanganen (*Bull. of Raffles Mus. Singapore*, No. 6, pp. 83–101, 1931) die in der



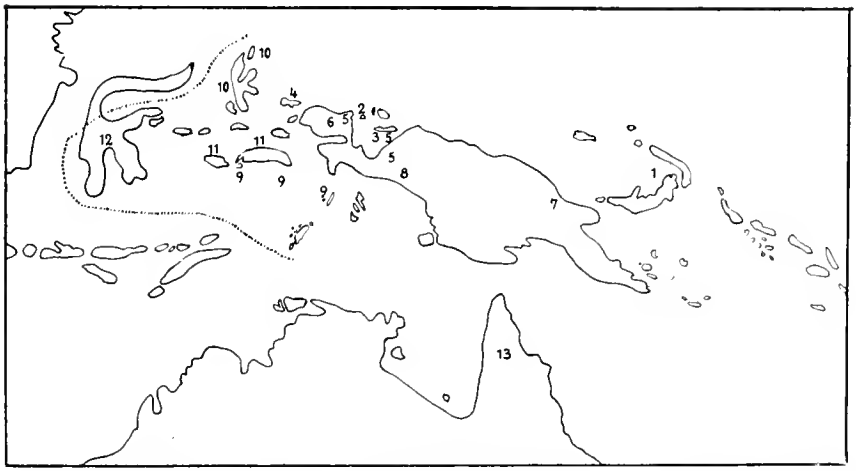
KARTE 2.— Verbreitung des Rassenkreises *Collocalia francica* im Malayischen Archipel.— Rassen : (1) *germani* Oust. ; (2) *vestita* (Less.) ; (3) *javensis* Stres. ; (4) *dammermani* Rensch ; (5) *micans* Stres. ; (6) *aenigma* Riley.

Westhälfte des Malayischen Archipels lebenden Formen zum Teil neu gruppiert. Es zeigte sich bei diesen Untersuchungen unter anderem, dass die Art *Collocalia fuciphaga* nach Osten nicht über Java hinausreiche und alle Formen, die östlich der Wallace'schen Linie vorkommen und von Stresemann 1925 als Rassen zu *C. fuciphaga* gestellt worden waren, anderen Arten angehören müssen. Es sei nun hier der Versuch unternommen, die Gruppierung für das papuanische Gebiet, die Molukken und Celebes durchzuführen. Er kann jetzt mit besserem Recht gewagt werden, da die Expeditionen Stein und Heinrich ein einzigartiges Material zur Klärung der Frage geliefert haben.

In dem nun zu behandelnden Gebiet kommen mindestens zwei (wenn nicht mehr) Arten der grauen Salanganen vor. Sie wurden früher als *Collocalia fuciphaga* und *C. francica* unterschieden. Man glaubte also diese beiden Arten

über das ganze malayische Gebiet hinweg bis ins polynesische Gebiet verfolgen zu können. Mit dieser Schematisierung ist man jedoch zu weit gegangen.

Wie wir durch die Ergebnisse der Expedition Heinrich wissen, kommen in Central-Celebes zwei *Collocalia*-Arten nebeneinander vor: eine kleinere mit scharf ausgeprägtem weisslichgrauen Bürzelband, die von Stresemann als *C. francica sororum* beschrieben wurde, und eine grössere, deren ganze Oberseite einfarbig ist und die von Riley den Namen *C. francica aenigma* erhielt. Während *C. sororum* von allen *Collocalia*-Formen der Kleinen Sundainseln, der Philippinen und von Borneo fundamental abweicht, lässt sich *C. aenigma* unserer Meinung nach ohne Zwang an *C. francica vestita* (Borneo) und *C. francica micans* (Kleine Sunda-Inseln) anschliessen. Es erhebt sich nun die Frage, ob *C. sororum* nahe Verwandte auf den Molukken hat, ob sie also etwa von Osten her auf Celebes eingewandert ist, und ob für *C. aenigma* das gleiche gilt. Heinrichs Sammlung



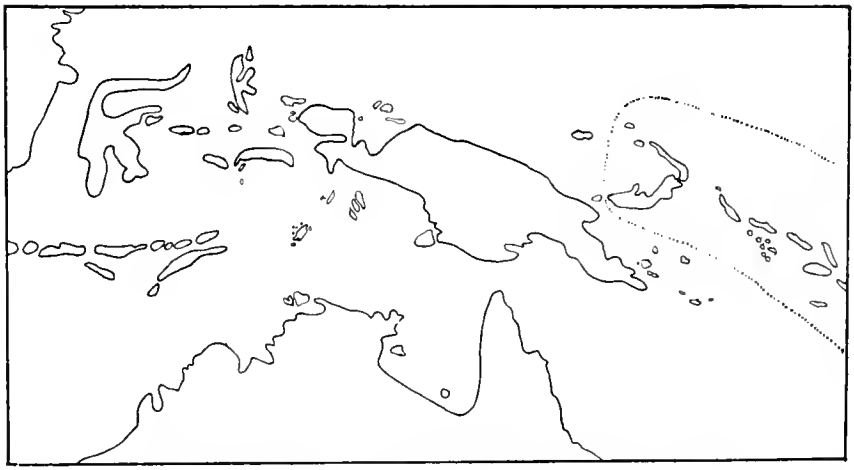
Karte 3.—Verbreitung des Rassenkreises *Collocalia vanikorensis* im Raum zwischen Celebes und Bismarck-Archipel.—Rassen: (1) *vanikorensis* (Quoy & Gaim.); (2) *steini* (Stres. & Pal.); (3) *baru* Stres. & Pal.; (4) *waigeuensis* Stres. & Pal.; (5) *hirundinacea* Stres.; (6) *mayri* Hart.; (7) *pseudovestita* Stres.; (8) *excelsa* Og. Grant; (9) *moluccarum* Stres.; (10) *infuscata* Salvad.; (11) *ceramensis* van Oort; (12) *sororum* Stres.; (13) *terrae-reginae* Rams.

von Halmahera erlaubt es, diese Frage zu beantworten und damit die Taxonomie der Collocalien wieder ein Stück weiter zu bringen.

Auf den Nord-Molukken (Ternate, Halmahera) lebt nur *eine* Art grauer Collocalien; dies ist *C. infuscata* Salvadori, von welchen Herr Heinrich eine Serie von 5 Stück am Vulkan Gomkonora auf Nordhalmahera sammelte. Diese Exemplare sind äusserst interessant. Sie offenbaren nämlich, dass die Bürzelfärbung auf Halmahera in überraschender Weise variiert. Es gibt dort Individuen mit sehr licht weissgrauem Bürzelband, die fast genau so aussehen wie *C. sororum*, und daneben andere, denen jede Aufhellung in der Bürzelregion völlig fehlt und welche dadurch täuschend ähnlich sind den Salanganen von Neuguinea, die man bisher in den Rassenkreis *C. fuciphaga* einbezogen hat. Die gleiche Variabilität der Bürzelfärbung hat bereits Pleske (*Mélanges Biol., Bull. Acad. Sci. St. Petersbourg*, xii, 1884, p. 121) bei *C. infuscata* auf Ternate gefunden. *C. infuscata* zeigt also, dass *C. sororum* ein Einwanderer von Osten her ist und mit den dunkel-

bürzligen Collocalien von Neuguinea in einen Rassenkreis gestellt werden muss. Dieser Rassenkreis lässt sich nach Osten über Neuguinea hinaus verfolgen. Es gehört dahin mindestens noch *C. vanikorensis* Quoy & Gaimard, welche von Vanicoro beschrieben wurde und uns in einer Serie vom Bismarck-Archipel vorliegt.

Während es auf Neuguinea ausser der riesigen *Collocalia whiteheadi* unseres Wissens keine andere "graue" *Collocalia*-Art gibt, lebt im Bismarck-Archipel neben *C. vanikorensis* noch eine zweite, kleinere Art, die nicht wie *C. vanikorensis* eine einfarbige Oberseite, sondern einen scharf markierten weisslichen Bürzel hat: *C. reichenowi*, von früheren Autoren in den Rassenkreis *C. francica* gestellt. Diese hellbürzlige Gruppe ist ausser vom Bismarck-Archipel auch von den Salomonen, den Fiji-Inseln, Tonga- und Samoa-Inseln bekannt, lässt sich dagegen vom Bismarck-Archipel aus nicht mit Sicherheit weiter nach Westen verfolgen.



KARTE 4.—Verbreitung von *Collocalia spodiopygia reichenowi* Stres.

Es ist nicht möglich, sie an die Gruppe *C. francica* anzuschliessen, und man tut daher gut, *C. reichenowi* und die ihr nahestehenden Rassen unter dem ältesten Namen *C. spodiopygia* zusammenzufassen. Es bleibt nun zu untersuchen übrig, wie die dunkelbürzligen Collocalien des papuanischen Gebietes, welche nach Westen zu in hellbürzlige übergehen, zu benennen sind. Wir haben gesehen, dass sie weder zu *C. fuciphaga* noch zu *C. francica* noch zu *C. spodiopygia* gestellt werden können. Das zwingt zu der Annahme eines weiteren Rassenkreises, der nach der ältesten hierhergehörigen Form *C. vanikorensis* genannt werden muss. Zur westlichen Gruppe von *C. vanikorensis* gehören die folgenden Formen:

1. *C. vanikorensis vanikorensis* Quoy & Gaimard.

Verbreitung: Bismarck-, Louisiade- und D'Entrecasteaux-Archipel, Santa Cruz, Neue Hebriden.

Bürzel gleichfarbig mit Rücken, Tarsus stets unbefiedert, Ohrdecken sehr hell im Gegensatz zu fast allen Rassen von Neuguinea und seinen Inseln. Flügel 116–123 mm.

2. *C. vanikorensis steini* subsp. nov.

Verbreitung : Numfor.
Typus : ♀ ad., Numfor 14. April 1931, G. Stein leg. Nr. 734.

732.	18. IV.	♂1.	Fl. 118 ;	Schw.	43/55 ;	Gew.	11,5	
717.	20. IV.	♂1.	„ 123 ;	„	43/55 ;	„	10	
726.	18. IV.	♂1.	„ 115 ;	„	44,5/53 ;	„	10,1	
733.	18. IV.	♂0.	„ (110) ;	„	44/49 ;	„	10,8 ;	Flügelmauser.
716.	20. IV.	♂0.	„ 117 ;	„	44/ ;	„	10,9	„
734.	14. IV.	♀0.	„ 118,5 ;	„	45/53 ;	„	13,5 ;	Typus.
709.	14. IV.	♀0.	„ 117,5 ;	„	41/51 ;	„	10,5	
714.	18. IV.	♀0.	„ (118) ;	„	44,5/53 ;	„	11,7 ;	Flügelmauser.
715.	20. IV.	♀0.	„ (116) ;	„	44/52 ;	„	9,5	„

Alle ohne Tarsenbefiederung.

Auf der Unterseite dunkler als alle Populationen aus Westneuguinea (mit Ausnahme von *waigeuensis*, von welcher sie sich aber unterscheiden durch bedeutendere Flügellänge), nämlich fast genau von demselben Farbton wie *C. francica javensis*. Auf der Oberseite nicht zu unterscheiden von unserem Material aus Waigeu, Manokwari und Weyland-Gebirge (aber besonders auf dem Rücken etwas heller und grünlicher, nicht so schwärzlich und dabei nicht so bläulich schimmernd wie die Rasse *baru* auf Jobi). Schwanz relativ länger als bei den anderen papuanischen Rassen ; Tarsus völlig unbefiedert, Flügellänge : 110–118,5.

3. *C. vanikorensis baru* subsp. nov.

Verbreitung : Kampong Baru auf Jobi.
Typus : ♀ ad., Kampong Baru, Jobi, 25. März 1931, G. Stein leg. Nr. 643.

635.	24. III.	♂2.	Fl. 113 ;	Schw.	41/47,5 ;	Gew.	8,7 ;	Flügelmauser.
634.	24. III.	♂0.	„ 110 ;	„	41/(43) ;	„	8,7	„
641.	25. III.	♂2.	„ 112 ;	„	39/47 ;	„	9,6	„
633.	24. III.	♂0.	„ 106,5 ;	„	39/47 ;	„	8,5	„
643.	25. III.	♀0.	„ 108 ;	„	40/45,5 ;	„	9,6 ;	Typus.
642.	25. III.	♀0.	„ 109 ;	„	40/45 ;	„	9,1 ;	Flügelmauser.

Alle mit Tarsenbefiederung.

Auf Jobi sammelte Herr Stein zwei verschiedene Rassen dieser Art. Während er beim Dorf Serui eine kleine Serie erbeutete, die wir nicht von Exemplaren aus Manokwari zu trennen vermögen, es sei denn, dass die Ohrdecken bei den Vögeln von Serui etwas heller, weniger schwärzlich sind, und die wir vorläufig als *C. v. hirundinacea* betrachten, da wir einen direkten Vergleich mit terratypischen Stücken gegenwärtig nicht unternehmen können, erbeutete er bei der Ortschaft Kampong Baru eine deutlich verschiedene Subspecies. Sie ist kleiner als die bei Serui vorkommende Rasse, hat nicht einen nackten, sondern einen auf der Aussenseite meist kräftig befiederten Lauf und eine dunklere Oberseite, die auf dem Rücken mehr bläulich, weniger grünlich schillert. Auf der Unterseite ist sie ebenso hell silbrig wie die Vögel von Serui und Manokwari. Die Ohrdecken der Rasse *baru* sind so dunkel wie bei Manokwarivögeln, nicht so bräunlich wie bei Serui-Vögeln.

4. *C. vanikorensis waigeuensis* subsp. nov.

Verbreitung: Waigeu.

Typus: ♂ ad., Waigeu 16. Mai 1931, G. Stein leg. Nr. 1453.

1453.	16. V.	♂1.	Fl. 110;	Schw. 38,5/44;	Gew. 9,5;	Typus.		
1451.	10. V.	♂1.	„ 110,5;	„ 39/46;	„ 10,2;	Flügelmauser.		
1450.	9. VI.	♂1.	„ 109;	„ 38/44,5;	„ 9,5			
1449.	16. V.	♂0.	„ 110;	„ 40/47;	„ 9			
1447.	16. V.	♂0.	„ 112;	„ 38/46;	„ 10	Andeutung von Tarsenbefied.		

Ganz wie die Rasse *steini* von Numfor gefärbt und gleichfalls mit unbefiedertem Lauf (bei einem Exemplar an der Aussenseite einige Federchen), aber im Mittel kleiner und mit kürzerem Schwanz.

5. *C. vanikorensis hirundinacea* Stres.

Verbreitung: provisorisch rechnen wir hierher Exemplare von dem Süd- und Nordhang des Schneegebirges, von Serui auf Jobi und von Manokwari.

458.	7. III.	"Jobi."[1]	♂0.	Fl. 111;	Schw. 43/51;	Gew. 10,5		
602.	19. III.	Serui.	♂0.	„ 114,5;	„ 40/48;	„ 10,5;	Flügelmauser.	
649.	27. III.	„	♀2.	„ 118;	„ 41,5/50;	„ 10,5	„	
648.	26. III.	„	♀0.	„ 114;	„ 40,5/48;	„ 10,5	„	

[1] "Geschossen im Talkessel, an dessen Ausläufer Serui liegt."

Die drei ersten ganz ohne Tarsenbefiederung, der letzte mit einigen Federchen auf der Aussenseite des Laufs.

1448.	1. V.	Manokwari.	♂2.	Fl. 115;	Schw. 42/50	
664.	2. IV.	„	♀0.	„ 108;		Gew. 9,2

Beide ohne Tarsenbefiederung. Nr. 664 in Grossgefiedermauser.

Unter diesem Namen fassen wir vorläufig die uns von Manokwari, dem unteren Menoo-Fluss am Fuss des Weylandgebirges und dem Dorf Serui auf Jobi aus der Sammlung Stein vorliegenden Exemplare zusammen. Ob sie wirklich mit der Population, die an der terra typica (oberer Utakwa-Fluss am Südhang des Schneegebirges) lebt, identisch sind, könnte nur durch direkten Vergleich entschieden werden und scheint uns sehr fraglich. Auf der Unterseite sind sie hell silbergrau wie *C. v. sororum*, *infuscata* und *baru*, also weniger bräunlich getönt als *steini* und *waigeuensis*. Auf der Oberseite stimmen sie im Farbton überein mit *steini* und *waigeuensis*, während *infuscata*, *sororum* und *baru* auf der Oberseite dunkler und blauer, weniger grünlich schillern. Der Lauf ist in der Regel nackt. Die drei Exemplare vom Menoo und die kleine Serie von Serui unterscheiden sich von den beiden Manokwari-Stücken durch etwas bedeutendere Flügellänge und schwärzlichere Ohrdecken.

6. *C. vanikorensis mayri* Hart.

Collocalia fuciphaga mayri Hartert, *Nov. Zool.* vol. xxxvi, p. 93 (1930 — Siwi).

Verbreitung: Arfak-Gebirge (Siwi 800 m.).

Nach der Diagnose unterscheidet sich der Typus, der bisher Unicum geblieben ist, von *C. v. hirundinacea* durch dicht befiederten Lauf.

7. *C. vanikorensis pseudorestita* Stres.

Verbreitung: Nur bekannt von der Astrolabe-Bai (ehem. Deutsch-Neuguinea). Im Vergleich zu allen bisher bekannten Neuguinea-Rassen auf der Oberseite heller und grünlicher, nicht so bläulich schillernd. Oberseite fast so hell wie bei *C. francica javensis*, aber vor allem auf dem Oberkopf mehr bläulich, weniger grünlich schillernd. Unterseite nicht so silbrig wie bei *hirundinacea*, sondern etwas bräunlicher. Ohrdecken sehr hell, wie bei *vanikorensis* fast von dem Farbton der Unterseite, also viel heller als bei *hirundinacea*. Tarsus an der Aussenseite bei einem Exemplar nackt, bei anderen mit einigen Federchen. Flügellänge 109, 110, 111, 113, 116.

8. *C. vanikorensis excelsa* O.-Grant.

Verbreitung: Oberer Utakwa-Fluss (8000 Fuss).

Vor allen übrigen beschriebenen Neuguinea-Rassen durch die bedeutende Grösse gekennzeichnet; in der Färbung anscheinend sehr ähnlich *C. v. hirundinacea*.

9. *C. vanikorensis moluccarum* Stres.

Verbreitung: Ambon, Banda, Taam, Koor, Kei-Inseln.

Von *C. v. hirundinacea* abweichend durch die in der Regel etwas dunklere Unterseite und häufig grünlicheren, weniger bläulichen Schiller der Oberseite, Von *C. v. ceramensis* abweichend durch einfarbige Oberseite, völlig nackten Tarsus und bedeutendere Grösse. Fl. 110–118. Mittel von 23 Exemplaren 114,5.

10. *C. vanikorensis infuscata* Salvad.

Verbreitung: Halmahera, Ternate, Morotai.

Auf Ober- und Unterseite fast genau so gefärbt wie *C. v. baru*, aber in der Regel mit einem weisslichgrauen Bürzelband mit feinen schwarzen Schaftstrichen. Selten ist dieses Bürzelband sehr stark verdunkelt oder gar völlig verschwunden, sodass dann die ganze Oberseite wie bei den papuanischen Rassen einfarbig ist. Tarsenbefiederung stark wechselnd zwischen starkbefiedert und völlig fehlend. Fl. 109,5–110²–111–113.

11. *C. vanikorensis ceramensis* van Oort.

Verbreitung: Seran, Buru.

Anscheinend nicht zu unterscheiden von *leucopygia* Wall. aus Neu-Kaledonien. Oberseite wie bei *C. v. infuscata* bis auf den Umstand, dass das Bürzelband sehr scharf ausgeprägt und beinahe rein weiss ist mit schwarzen Schaftstrichen. Unterseite heller als bei *infuscata*: silbrig grauweiss. Tarsusbefiederung: Aussenseite der Läufe schwach befiedert. Fl. 102–109.

12. *C. vanikorensis sororum* Stres.

Verbreitung: Mittel-, Südost- und Süd-Celebes.

In der Färbung äusserst ähnlich *infuscata*, aber Unterseite ein klein wenig heller, silbriger, und Bürzelband noch weisslicher, niemals fehlend. Tarsenbefiederung: Wechselnd zwischen schwach und sehr stark. Fl. ♂ 109–115, ♀ 107–114 (vgl. *Orn. Monatsber.* 1931, p. 13).

13. *C. ranikorensis terrae-reginae* Ramsay.

Verbreitung: Nord-Queensland.

Bei dieser Rasse, die uns gegenwärtig nicht vorliegt, ist der Bürzel in der Regel stark weisslich aufgehellt, wie bei *C. v. infuscata*, es scheint aber auch Individuen mit ganz einfarbiger Oberseite zu geben.

Als Synonyme betrachten wir *C. francica yorki* Math. und *C. francica zoonava* Math., doch halten wir es für möglich, dass künftige Untersuchungen die Existenz mehrerer geographisch getrennter Rassen in Nord-Queensland erweisen werden.

Caprimulgus macrurus schillmölleri Stres.

Caprimulgus macrurus schillmölleri Stresemann, *O. M. B.* xxxix, p. 170 (1931—Halmahera).

Gesammelt von: Wallace, Stein.

1538.	28. V.	♂₂.	Fl. 179;	Gew. 66		
1539.	2. VI.	♂₂.	„ 189;	„ 69		
1540.	10. V.	♂₁.	„ 178;	„ 67		
1541.	2. VI.	?.	„ 176;	„ —	;	Flügelmauser.
1543.	13. V.	♀₀.	„ 178;	„ 68		„

Die von Herrn Stein auf Waigeu gesammelten Stücke weichen so, wie es die Diagnose von *schillmölleri* angibt, von 3 Exemplaren aus Manokwari (*C. m. yorki*) ab.

Die Geschlechter unterscheiden sich in folgender Weise: das helle Feld der Steuerfedern ist beim ♀ nicht rein weiss wie beim ♂, sondern bräunlich gelb getrübt. Ebenso verhält es sich mit dem weissen Flügelspiegel. Nr. 1540, als ♂ vom Sammler bezeichnet, gleicht in der Färbung einem ♀; wahrscheinlich ist das auch ein Merkmal des jungen ♂.

Podargus papuensis papuensis Quoy & Gaimard.

Podargus papuensis conigravi Mathews, *Nov. Zool.* Bd. xviii, p. 281 (1912—Waigeu).

Gesammelt von: Bruijn, Guillemard, Platen.

Podargus ocellatus ocellatus Quoy & Gaimard.

Podargus superciliaris Gray, *Proc. Zool. Soc. Lond.* 1861, p. 428, pl. 42 (1861—Waigeu).

Gesammelt von: Wallace, Bruijn, Guillemard, Platen, Stein.

1543. 27. V. ♂₁. Fl. 190; Schw. 164; Gew. 140

Ninox theomacha (Bonap.).

Gesammelt von: Beccari, Platen, Waterstradt.

Das von Platen auf Waigeu gesammelte Stück befindet sich unter Nr. 27690 im Berliner Museum. Im Vergleich zu einem von Dr. Mayr im Saruwagedgebirge erbeuteten Exemplar ist der Oberkopf durch seine Farbe viel weniger scharf gegen den Rücken abgesetzt. Der Oberkopf des Waigeuvogels hat bräunlichere, weniger schwarzgraue, der Rücken graulichere, weniger röstlichbräunliche Tönung, als es bei dem Saruwagedvogel der Fall ist. Das stimmt ganz gut mit der Beschreibung überein, die Salvadori (*Orn. Pap.* i, p. 79) von dem durch Beccari auf Waigeu gesammelten Stück gegeben hat. Es lebt also möglicherweise auf Waigeu eine noch unbenannte endemische Rasse.

Ninox rufa humeralis (Bonap.).

Noctua franseni Schlegel, *Ned. Tijdschr. Dierk.* vol. iii, p. 256 (1866—Waigeu).

Gesammelt von : Bernstein.

Salvadori hat (*Orn. Pap.* i, p. 86) keinerlei Unterschiede zwischen dem von Bernstein erlegten ♀ und Vögeln von Neuguinea feststellen können.

Merops ornatus Lath.

Gesammelt von : Stein.

1002. 4. V. ♀0. Fl.101,5 ; Gew. 25,8 ; Gross- und Kleingefiedermauser.

Zugvogel aus Australien.

Rhyticeros plicatus ruficollis (Vieill.).

Buceros ruficollis Vieillot, *Nouv. Dict. d'Hist. Nat.*, vol. iv, p. 600 (1816—Waigeu).

Gesammelt von : Labillardière, Quoy & Gaimard, Beccari, Guillemard, Platen, Stein.

1675. 15. V. ♀1. Fl. 380 ; Gew. 1600

Eurystomus orientalis crassirostris Sclater.

Gesammelt von : Wallace.

Eurystomus orientalis pacificus (Latham).

Gesammelt von : Bernstein.

Zugvogel aus Australien.

Alcyone azurea lessoni Cass.

Gesammelt von : Bruijn, Platen.

Alcyone pusilla (Temm.).

Gesammelt von : Beccari, Guillemard, Stein.

1296. 12. VI. ♂1. Fl. 51 ; Gew. 15,3

Ceyx lepidus solitarius Temm.

Gesammelt von : Bruijn, Guillemard, Platen, Stein

1297. 11. VI. ♂1. Fl. 54 ; Gew. 15
1295. 13. V. ♂1. „ 55,5 ; „ 15
1298. 16. VI. ♀0. „ 54 ; „ 14

Diese drei Bälge sind nicht zu unterscheiden von 4 Exemplaren aus Jobi und 6 Exemplaren vom Sepikgebiet. Die Farbe der Unterseite variiert individuell an Intensität.

Mageninhalt : Insekten (1295, 1298, Jobi 370).

Tanysiptera hydrocharis galatea Gray.

Gesammelt von: Wallace, Bernstein, Beccari, Bruijn, Guillemard, Platen, Stein.

1154.	15. V.	♂2.	Fl. 112,5;	Gew. 64	
1143.	27. V.	♂1.	„ 105;	„ 63	
1142.	17. V.	♂1.	„ 109;	„ 63	
1152.	20. V.	♂1.	„ 106;	„ —	
1139.	17. V.	♂1.	„ 107;	„ 66;	Schwanz- und Flügelmauser.
1144.	25. V.	♂1.	„ 108;	„ 67	
1145.	16. V.	♂0.	„ 107;	„ 64	„ „
1147.	10. V.	♀2.	„ 111;	„ 83	
1140.	15. V.	♀2.	„ 108,5;	„ 77	
1153.	21. V.	♀2.	„ 111;	„ —	
1149.	20. V.	♀2.	„ 108;	„ 65,5;	Reste des Jugendkleides.
1146.	11. V.	♀2.	„ 110;	„ 70,5	
1150.	20. V.	♀1.	„ 109;	„ 75	
1151.	15. V.	♀1.	„ 106;	„ 68;	Flügel- und Schwanzmauser.
1141.	24. V.	♀0.	„ 108;	„ 70,5	„ „
1148.	23. V.	"♀?."	„ 107,5;	„ 63	

Übereinstimmend mit einer Serie aus Manokwari und kaum zu unterscheiden von einer grossen Serie vom Sepikgebiet, auf die der Name *meyeri* Salvad. angewandt werden muss. Die Färbung des Oberkopfes variiert bei allen Populationen so stark zwischen heller und dunkler blauer Tönung, dass man nach diesem Merkmal die Rassen nicht trennen kann, und auch die Färbung des zentralen Steuerfederpaares ist von äusserst variablem Charakter; einzelne Stücke aus Waigeu haben an der Basis dieses Steuerfederpaares so viel Weiss wie die am extremsten gefärbten Sepikvögel. Die Diagnose von *T. h. meyeri* kann also nur lauten: Weiss an der Basis des centralen Steuerfederpaares in der Mehrzahl der Fälle ausgedehnter als bei *galatea* und Grösse etwas geringer (Altersflügel ♂♀ 98–110, bei *galatea* 104–112,5 mm.).

Mageninhalt: 1 grosser Tausendfüssler (1152), Larve, grosse Insekten (1144), 1 weichhäutige Krabbe (1140), Gehäuseschnecken (1153), 1 Krabbe (1151), 1 Schnecke und 1 Eidechse (1141).

Halcyon saurophaga saurophaga Gould.

Gesammelt von: Bernstein, Guillemard, Stein.

1551.	18. VI.		♂1.	Fl. 120;		Schwanzmauser.
1552.	21. VI.	Saonek.	♂1.	„ 119;		Oberflügeldecken mit weissen Säumen.
1553.	13. VI.		♀2.	„ 123;	Gew. 124;	Flügel- und Schwanzmauser.

Färbung: ♂ Schulter- und Rückenfedern weit bläulicher als beim ♀, ganz wie bei *H. chloris* [also: beim ♂ dark bluish grey-green (Ridgway, pl. XLII) beim ♀ dusky yellowish green (Ridgway, pl. XLI)].

Wir folgen der Anordnung, welche Mayr (*Amer. Mus. Nov.* No. 460, p. 3) vorgeschlagen hat, indem wir *Halcyon saurophaga* als eine eigene Art auffassen, die keine näheren Beziehungen zu *Halcyon albicilla* hat. Sharpe hat von *H. saurophaga* nach einem Exemplar, das die Challenger-Expedition an der NW.-Spitze von Manus gesammelt hat, eine Rasse *admiralitatis* abgetrennt, aber die von ihm angegebenen Kennzeichen sind individueller Natur und kehren nicht wieder bei 2 Exemplaren, welche das Berliner Museum durch Vermittlung von

Pater O. Meyer aus Manus erhielt; vielmehr sind diese beiden Stücke durchaus nicht zu unterscheiden von 3 Waigeustücken und 4 Numforstücken, welche Herr Stein sammelte und weiteren 4 Exemplaren des Berliner Mus. aus dem Bismarck-Archipel. Dagegen weichen 3 Exemplare aus dem Salomon-Archipel durch bedeutendere Flügellänge ab, wie folgende Messungen zeigen: Waigeu ♂ 119–120, ♀ 123; Numfor ♂ 125–127, ♀ 127; Manus ♂ 125, ♀ 120; Crednerinsel ♂ 125, ♀ 124,5; Neu-Hannover ♀ 119; Nusa (bei Neu-Irland) ♀ 124, dagegen Salomon-Inseln ♂ 132,5; Ysabel-Insel (Salomon-Inseln) ♂ 131. Wir benennen diese grosse Rasse der Salomon-Inseln:

Halcyon saurophaga cancrivora subsp. nov.

Typus: ♀ Ysabel-Insel, Sept. 1927, P. Drawne leg., Zool. Mus. Berlin. Nr. 28.466.

Mageninhalt: Grosse, ziemlich harte Krabben (1552), ein Fisch (Numfor 905).

Halcyon chloris chloris (Boddaert).

Gesammelt von: Barbour.

Im März 1907 sammelte Dr. Th. Barbour bei Saonek ein ♂ dieser Art, das ins Museum of Compar. Zoology gelangte (Oberholser, *Proc. U.S. Nat. Mus.* 55, 1919, p. 357). Man kannte *Halcyon chloris* bereits von Salawati.

Halcyon sancta sancta Vigors & Horsf.

Gesammelt von: Wallace, Bernstein, Bruijn, Guillemard.

Zugvogel aus Australien.

Syma torotoro torotoro Lesson.

Gesammelt von: Wallace, Bernstein, Bruijn, Beccari, Guillemard, Stein.

1011.	13. V.	♂$_2$.	Fl. 79;	Gew. 56	
1012.	14. V.	♂$_2$.	„ 81;	„ 45	
1005.	20. V.	♂$_1$.	„ 79;	„ 41;	Flügelmauser.
1008.	16. V.	♂$_1$.	„ 79,5;	„ 39,7	
1006.	25. V.	♂$_1$.	„ 77;	„ 41	
1004.	23. V.	♂$_1$.	„ 80;	„ 46	
1009.	11. V.	♂$_0$.	„ 77,5;	„ 43,5	
1010.	13. V.	♀$_2$.	„ 80;	„ 51	
1007.	23. V.	♀$_2$.	„ 79;	„ 46	
1003.	25. V.	♀$_1$.	„ 77;	„ 45	
1013.	10. V.	♀$_0$.	„ 79;	„ 42,5	

Die ♀♀ haben den Oberkopf schwarz statt rotbraun und die Flügeldeckfedern etwas grünlicher als die ♂♂ (nicht so bläulich). Die Ausdehung des braunen Stirnfeldes beim ♀ ist einer gewissen Variation unterworfen, doch nicht so viel, dass die Verhältnisse bei *tentelare* Hartert erreicht werden.

Nr. 1009 ist wie ein ♀ gefärbt, aber die schwarze Färbung des Oberkopfes ist nicht so weit nach dem Nacken zu ausgedehnt; vom Sammler ist dieses Stück als ♂ bezeichnet.

Mageninhalt: Kleine Käfer (1005), 1 grosse Spinne, 1 kleine Eidechse (1007), Insekten (1003), grosse weichhäutige Insekten (1013).

Sauromarptis gaudichaud (Quoy & Gaimard).

Dacelo gaudichaud Quoy et Gaimard, *Voy.* "*Uranie*" *Zool.* p. 112 (1825—terra typica: Waigeu).

Gesammelt von: Quoy & Gaimard, Wallace, Bernstein, Beccari, Bruijn, Guillemard, Stein.

1554. 11. V. ♂2. Fl. 130; Gew. 152
1555. 26. V. ♂1. „ 144; „ 140

Die Basis der Rückenfedern ist sehr variabel, bald reinweiss—besonders cranial kann die blaue Farbe fast ganz durch Weiss ersetzt werden—, bald schwärzlich wie die Basis der Bürzelfedern. Bei den Sepikvögeln ist das Weiss sehr hervortretend (vgl. A. B. Meyer, *Ibis*, 1890, p. 414: *Sauromarptis kubaryi* sp. nov.).

Mageninhalt: Harte Käfer, Scheren von einer Krabbe (322), Strandkrabben (329), harte Flügeldecken von grossen Käfern (315), kleine Krebse (59), grosse Käfer, Heuschrecken (82), 1 grosse Heuschrecke, kleine Steine (1555).

Melidora macrorhina waigiuensis Hart.

Melidora macrorhina waigiuensis Hartert, *Nov. Zool.* xxxvi, p. 99 (1930—Waigeu).

Gesammelt von: Bernstein, Bruijn, Beccari, Guillemard, Stein.

1556. 7. VI. ♂2. Fl. 128,5; Gew. 137
1560. 18. V. ♂1. „ 124; „ 123
1558. 9. VI. ♂1. „ 124,5; „ 122,2
1559. 13. V. ♂0. „ 124,5; „ 115
1557. 7. VI. ♀1. „ 128; „ 130

Wie von Hartert angegeben, unterscheidet sich die Form von Waigeu durch bedeutendere Flügellänge von *M. m. macrorhina* und *M. m. jobiensis*, wenn auch der Unterschied nicht sehr gross zu sein scheint. Wir massen bei der obigen Serie: ♂♂ Fl. 124–124,5²–128,5; ♀ 128 mm. Bei 3 *M. m. jobiensis* von Jobi massen wir: ♂ 115, ♀♀ 122,5–126 mm. Auch der Schnabel ist etwas grösser als bei *jobiensis*; ferner sind bei den ♀♀ von *waigiuensis* die grünblauen Säume, welche bei *macrorhina* deutlich hervortreten, schwach angedeutet wie bei *jobiensis*.

Mageninhalt: Eine riesige Larve, eine ziemlich harte Krabbe (1560), Tausendfüssler mit harten Chitinringen (1558), Heuschrecken, Schalenreste von Schnecken (1559), 1 grosser Tausendfüssler mit sehr hartem Chitinskelett, 1 Heuschrecke (Jobi 343), Heuschrecke und Käfer (Jobi 617).

Cuculus optatus Gould.

Gesammelt von: Guillemard.

Wintergast aus dem palaearktischen Asien.

Cacomantis variolosus infaustus Cab. & Heine.

Gesammelt von: Wallace, Stein.

1001. 11. V. ♂2. Fl. 115,5; Schw. 111,5

Stimmt mit Jobi- und Neuguineavögeln überein.

Cacomantis variolosus variolosus (Vig. & Horsf.).

Gesammelt von : Stein.

1000. 16. VI. ♂₀. Fl. 127,5 ; Schw. 113 ; Gew. 37 ; juv.

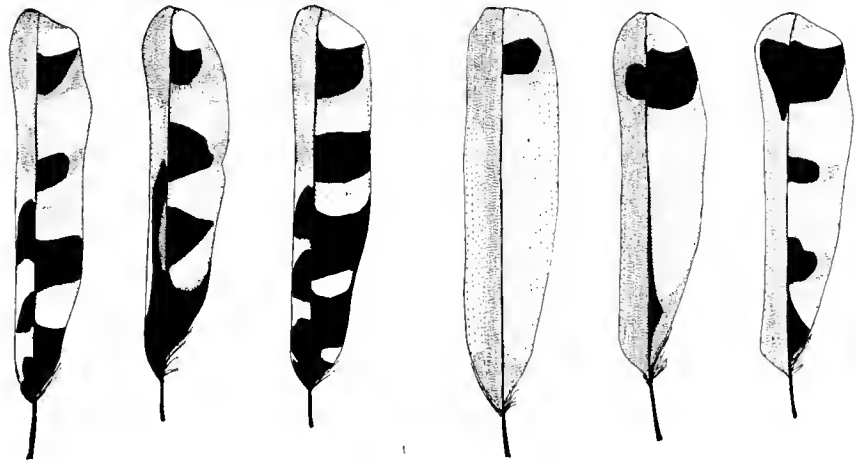
Zugvogel aus Australien.

Chalcites malayanus poecilurus (Gray).

Gesammelt von : Stein.

987. 27. V. ♀₂. Fl. 90 ; Gew. 18,5

Dieses Exemplar stimmt in der Färbung des Schwanzes sehr gut überein mit der Beschreibung des von Wallace auf Misol gesammelten Typus (*Proc. Zool. Soc. Lond.* 1861, p. 431), weicht dagegen von zwei Exemplaren des Berliner



*a*1 *b*1 *c*1 *a*2 *b*2 *c*2

Figur 5.—1. und 2. Steuerfeder von aussen : *a*1 und *a*2, *Chalcites malayanus* subsp. ? (♀ Ramu, 19. IX, Tappenbeck leg. Nr. 347) ;—*b*1 und *b*2, *Ch. m. malayanus* (Raffles) (♂ Pasui, 600 m. S.-Celebes, 4. VI. 1930, Heinrich leg. Nr. 314) ;—*c*1 und *c*2, *Ch. m. poecilurus* (Gray) (♀ Waigeu, 27. V. 1931, Stein leg. Nr. 987). Weiss und Schwarz in den Figuren entspricht denselben Farben bei den Federn, dicht punktiert entspricht grau, weit punktiert rotbraun.

Museums aus Deutsch-Neuguinea deutlich ab und zwar (1) durch den weit schlankeren Schnabel, der bei *poecilurus* wie bei *malayanus* gestaltet ist, während er bei den Stücken von Ramu und Sepik in der Basis wesentlich breiter ist, (2) durch die Färbung der Steuerfedern von unten (siehe Figur). Querbänderung der Unterseite so breit wie bei Neuguinea-Vögeln und breiter als bei *malayanus*. *Ch. m. poecilurus* vermittelt also in mancher Hinsicht zwischen *malayanus* und der Rasse von Neuguinea, deren wissenschaftliche Benennung noch festzustellen ist.

Rhamphomantis megarhynchus sanfordi Stres. & Pal.

Rhamphomantis megarhynchus sanfordi Stresemann & Paludan, *O. M. B.* Bd. 40, p. 17 (1932—Waigeu).

Gesammelt von : Stein.

988. 24. V. ♀₂. Fl. 985 ; Gew. 17 ; " Füsse blaugrau."

Die Originalbeschreibung lautet wie folgt :

" Der seltene, durch einen sehr langen Schnabel ausgezeichnete Kuckuck *Rhamphomantis megarhynchus* (Gray) war bisher nur von den Aru-Inseln und von wenigen Oertlichkeiten Neuguineas bekannt. Herr Stein erbeutete ein ♀ ad. auf Waigeu, das von einem zum Vergleich benutzten ♀ vom Sepik (Dr. Bürgers leg.) und der damit im wesentlichen übereinstimmenden Beschreibung des (von Wallace auf den Aru-Inseln gesammelten) Typus bei Salvadori, *Orn. Pap.* i, p. 343 sehr auffällig abweicht durch folgende Merkmale :

Vordere Hälfte der Unterseite in der Färbung scharf abgesetzt gegen hintere Hälfte : vom Kinn bis zur Vorderbrust sind die Federn schmutzig weiss mit feiner unregelmässiger schwarzbrauner Querbänderung und nur ganz blasser isabellfarbener Tönung ; von da ab bis zur Analgegend sind sie fast einfarbig hell rostfarben (an den Körperseiten am dunkelsten), mit wenigen schwarzbraunen Einsprengungen von Eumelanin (dagegen ist bei *R. m. megarhynchus* die ganze Unterseite unregelmässig schwarzbraun gebändert, und auch die vordere Hälfte derselben stark röstlich isabell verwaschen). Unterschwanzdecken hell rostfarben mit breiten schwarzbraunen Querbändern. Steuerfedern etwa wie bei *megarhynchus* gefärbt. Unterflügeldecken und Axillaren einfarbig röstlich (bei *megarhynchus* mit unregelmässigen oder unvollständigen schwarzbraunen Querbändern). Oberseite mit grünlich erzfarbenem (bei *megarhynchus* mit violett-erzfarbenem) Schiller. Ein überm Auge beginnender Superciliarstreifen und die untere Umrahmung des Auges schmutzig weiss (bei *megarhynchus* sind die entsprechenden Federn so düster wie die Ohrdecken). Oberschnabel schmäler und etwas kürzer als bei *megarhynchus* und mit viel schärferem First. Flügel 98,5 mm.

Typus : ♀ ad., Waigeu 24. Mai 1931, G. Stein leg. Nr. 988.

Verbreitung : Waigeu.

In Verehrung gewidmet Herrn Dr. L. C. Sanford, der zum Zustandekommen der Expedition Stein so wesentlich beigetragen hat."

Eudynamis scolopacea rufiventer (Lesson).

Gesammelt von : Guillemard.

Guillemard erhielt von Bruijn in Ternate ein " Waigeu " etikettiertes ♀, das vermutlich zu dieser Rasse gehört.

Kakatoe galerita macrolopha (Rosenb.).

Plyctolophus macrolophus Rosenberg, *Nat. Tijdschr. Ned. Ind.* Bd. xxiii, p. 45 (1861—Mysol & Salawati).

Gesammelt von : Wallace, Bernstein, Beccari, Bruijn, Platen, Stein.

1664. 12. V. ♀$_1$. Fl. 306 ; Gew. 525

Hierher gehören auch zweifellos die Vögel von Numfor.

Probosciger aterrimus alecto (Temm.).

Psittacus alecto Temminck, *Bijdr. Natuurk. Wetensch. Amsterdam*, iii, p. 74 (1828—Heimat unbekannt ; terra typ. design. : Waigeu).

Gesammelt von : Lesson, Wallace, Bernstein, Bruijn, Guillemard, Stein.

1653.	10. VI.	♂$_1$.	Fl. 348 ;	Schn. 89 ;	Gew. 775
1654.	25. V.	♂$_1$.	„ 347 ;	„ 96 ;	„ 775
1655.	12. V.	♀$_2$.	„ 339 ;	„ 74 ;	„ 525

Die drei Exemplare aus Waigeu sind besonders klein, verglichen mit *P. a. goliath* vom Festland; das ♀ hat auffallend kleinen Schnabel.

Zum Vergleich: *P. a. goliath* ♂ ad.; Flügel 392, Schnabel 110 mm.

Opopsitta diophthalmus diophthalmus (Homb. & Jacquinot).

Gesammelt von: Platen.

Dr. Platen erbeutete von dieser Art nicht weniger als 20 Stück!

Micropsitta keiensis chloroxantha Oberh.

Micropsitta pygmaea (Quoy & Gaimard) *et auctorum*, *cf.* Mathews, *Syst. Av. Austr.* i, p. 319.

Gesammelt von: Bernstein, Bruijn, Platen, Stein.

1459.	16. VI.	♂2.	Fl. 63;	Gew. 12,8
1463.	14. VI.	♂1.	„ 62;	„ 12,1
1460.	16. VI.	♂1.	„ 57;	„ 11,6
1465.	16. VI.	—	„ 60;	„ 12,8
1464.	16. VI.	♀2.	„ 58;	„ 14
1462.	16. VI.	♀0.	„ 61;	„ 11

Tanygnathus megalorhynchus megalorhynchus (Bodd.).

Gesammelt von: Wallace, Bernstein, Guillemard, Platen, Stein.

1607.	9. VI.	♀2.	Fl. 238;	Gew. 325;	Iris weisslich grün, Füsse grün.
1605.	24. V.	♀2.	„ 239;	„ —	
1608.	14. VI.	♀2.	„ 236;	„ 367;	Schnabel rot, Spitze mattgelb.
1606.	10. VI.	♀1.	„ 237;	„ 325;	Iris weisslich grün, Füsse grün.
1604.	17. V.	♀1.	„ 245;	„ 350	

Alisterus amboinensis dorsalis (Quoy & Gaim.).

Psittacus (*Platycercus*) *dorsalis* Quoy et Gaimard, *Voy. Astrolabe*, *Zoologie*, i, p. 234, Ois. pl. xxi, f. 3 (1830—Dorey).

Gesammelt von: Wallace, Bernstein, Bruijn, Guillemard, Platen, Stein.

1566.	25. V.	♂0.	Fl. 194;	Gew. 170;	Iris goldgelb.
1567.	7. VI.	?.	„ 196;	„ 195	

Professor Neumann schreibt in einem Briefe, dass die Exemplare aus Waigeu einen etwas längeren Flügel und ausgedehnteres Blau auf den oberen Flügeldecken vorweisen (2 im Berliner Museum); ich finde aber bei den 2 Stücken, die durch Stein auf Waigeu erbeutet wurden, dass diese Unterschiede nicht stichhaltig sind.

Geoffroyus geoffroyi pucherani (Gray).

Gesammelt von: Wallace, Bernstein, Bruijn, Guillemard, Platen, Stein.

1530.	10. V.	♂1.	Fl. 157;			ad.
1527.	6. V.	♂1.	„ —			in Flügelmauser; ad.
1526.	10. V.	♂1.	„ 159;	Gew. 163;		Iris gelbgrün; ad.
1522.	4. VI.	♂1.	„ 158;	„ 148;		juv.
1528.	12. V.	♂1.	„ 160;	„ 172;		„
1521.	19. V.	♂1.	„ 158;	„ 147		„
1529.	4. VI.	♂1.	„ 146;	„ 121		„ Iris weiss, Füsse graugrün.
—	10. V.	—	„ 157;	„ 160		
1519.	17. V.	♀1.	„ 163;	„ 198		
1524.	4. VI.	♀0.	„ 161;	„ 165		
1518.	10. V.	♀.	„ 156;	„ 172		

Diese Lokalrasse steht *G. g. jobiensis* am nächsten, unterscheidet sich aber durch das dunklere Braunrot des Bürzels, schmälere rote Zone auf dem Vorderkopf und dunkleres Blau der Unterflügeldecken.

Eclectus roratus pectoralis (S. Müll.).

Gesammelt von : Lesson, Wallace, Bernstein, Guillemard, Platen, Stein.

1603.	11. V.	♂1.	Fl. 260 ;	Gew.	425
1602.	11. V.	♂.	„ 259 ;	„	325
1601.	18. V.	♀1.	„ 254 ;	„	—

Loriculus aurantiifrons batavorum Stres.

Gesammelt von : Stein.

1458.	16. VI.	♂1.	Fl. 68 ;	Gew.	13,5

Lorius lory major (Rothsch. & Hart.).

Lorius lory major Rothschild & Hartert, *Nov. Zool.* Bd. viii, p. 66 (1901—Waigeu).

Gesammelt von : Lesson, Wallace, Bernstein, Bruijn, Guillemard, Platen, Stein.

1501.	12. V.	♂2.	Fl. 171 ;	Gew.	226
1494.	10. V.	♂1.	„ 167 ;	„	203
1495.	14. V.	♂1.	„ 167 ;	„	200
1503.	13. VI.	♀2.	„ 161 ;	„	202
1523.	15. V.	♀2.	„ 167 ;	„	159
1502.	1. VI.	♀1.	„ 163 ;	„	—
1493.	15. V.	♀1.	„ 162 ;	„	177
1500.	13. V.	♀0.	„ 171 ;	„	192
1504.	13. V.	♀.	„ 165 ;	„	185

Von dieser ganz kenntlichen Subspecies hat Herr Stein 9 Exemplare gesammelt ; darunter 1 ♂ 2 ♀♀ juv., die mehr oder weniger blaugemischte Vorderbrust zeigen. Das ♂ hat dazu rote Ränder der Federn des Rückens und Interscapuliums und der oberen Deckfedern.

Eos squamata squamata (Bodd.).

Gesammelt von : Wallace, Bernstein, Bruijn, Guillemard, Platen.

Trichoglossus haematodus haematodus (L.).

Gesammelt von : Wallace, Bernstein, Bruijn, Guillemard, Platen, Stein.

1516.	18. V.	♂2.	Fl. 141 ;	Gew.	135	
1508.	11. V.	♂1.	„ 141 ;	„	130	
1515.	12. V.	♂1.	„ 140 ;	„	127,8	
1517.	17. V.	♂1.	„ 135 ;	„	105	
1510.	12. V.	♂1.	„ 148 ;	„	136	
1511.	14. VI.	♂1.	„ 140 ;	„	115	
1513.	13. V.	♂0.	„ 135 ;	„	105	
1509.	12. V.	?.	„ 132 ;	„	94	
1507.	11. V.	♀2.	„ 139 ;	„	119	
1505.	17. V.	♀1.	„ (144) ;	„	127 ;	Iris hell blutrot.
1506.	12. V.	♀1.	„ 144 ;	„	109	
1512.	11. V.	♀0.	„ 142 ;	„	115	

Die Stücke aus Waigeu scheinen ausgedehntere grüne Streifen auf der Kopfmitte zu zeigen, sowie mehr Purpur am Hinterhals zu haben als Molukkenvögel, kommen daher näher zu *T. haematodus intermedius*, aber es gleichen unter den Vögeln von dieser Insel zu viele dem echten *haematodus*, als dass man sie zu *intermedius* stellen könnte.

Charmosynopsis placentis placentis (Temm.).

Gesammelt von : Bruijn, Guillemard, Platen.

Spizaetus gurneyi (Gray).

Gesammelt von : Wallace, Platen, Stein.

2990. 17. VI. ♀. Fl. 570 ; Gew. 3060

Haliaetus leucogaster (Gm.).

Gesammelt von : Bruijn, Stein.

2995. 18. VI. ♂0. Fl. 573 ; Gew. 2250 ; juv.
3004. 18. VI. ♀1. „ 577 ; „ 2850 ; ad.

Pandion haliaëtus cristatus (Vieillot).

Gesammelt von : Bruijn, Platen, Stein.

1661. 13 VI. ♂1. Fl. 414

Butastur indicus Gm.

Gesammelt von : Platen.

Berliner Mus. Nr. 27649 : Waigeu 11. 1. 1884, Platen leg. ♀ juv. Fl. 320 mm.

Waigeu liegt an der äussersten Grenze des Winterquartiers. Vgl. Hartert, *Vögel palaearkt. Fauna*, ii, p. 1187. Platens Belegstück ist ein ♀ im Jugendkleid.

Haliastur indus girrenera (Vieillot).

Gesammelt von : Wallace, Bernstein, Bruijn, Guillemard, Platen, Stein.

1670. 21. VI. ♂2. Fl. 379
1665. 12. VI. ♀0. „ 385 ; Gew. 400

Mageninhalt : Krabbe, Heuschrecken (1670). 1 Fisch, Insekten (Jobi 653).

Henicopernis longicauda (Garnot).

Gesammelt von : Wallace, Bruijn.

Baza subcristata reinwardti (Müll. & Schleg.).

Gesammelt von : Guillemard, Platen, Waterstradt, Stein.

1612. 11. V. ♀0. Fl. 306 ; Gew. 256 ; juv.

Mageninhalt : Grosse Heuschrecken (1612, Jobi 301).

Accipiter novaehollandiae leucosomus (Sharpe).

Stresemann, *O. M. B.* 1923, pp. 127–132.

Gesammelt von: Platen, Waterstradt, Stein.

1609. 9. VI. ♀0. Fl. 244; juv. (pigmentierte Phase).

Ferner befinden sich im Berliner Museum 3 von Platen auf Waigeu gesammelte Stücke, von denen eins der weissen Mutante angehört. (Nr. 27715, ♀ juv. Fl. 235.—Nr. 27646, ♀ juv. Fl. 231.—Nr. 27648, ♂ juv. ?, weisse Phase, Fl. 198). Weder in Grösse noch Färbung lassen sich diese Exemplare von solchen aus Neuguinea unterscheiden.

Mageninhalt: Prall mit Heuschrecken gefüllt, darunter Blattheuschrecken, die hoch in Urwaldbäumen leben (1609). Heuschrecken (Jobi 618, 608, Numfor 930, 937). 2 kleine Eidechsen, 1 kleine Schlange (Jobi 272). Grosse Heuschrekken, 1 Eidechse (Jobi 241). 2 Eidechsen (Jobi 242). 1 Eidechse, 1 kleine Ratte (Jobi 271), 1 kleiner Vogel, 1 Schlange. Auf Heuschrecken machte der Vogel am Boden hüpfend Jagd (Numfor 935).

Accipiter poliocephalus Gray.

Gesammelt von: Platen, Waterstradt, Stein.

1615. 14. VI. ♀1. Gew. 211; ad. Flügelmauser "Wachshaut, Füsse rot."

Nehrkorns Angabe, dass Platen einen Albino dieser Art auf Waigeu gesammelt habe, ist falsch, es handelt sich um einen *Accipiter novaehollandiae leucosomus*. (Das Stück befindet sich im Berliner Museum.)

Mageninhalt: Eidechse (1615), 1 Eidechse, Insekten (Jobi 621). 1 Schlange (Jobi 646), 1 Eidechse (Jobi 275). 1 Schlange, 1 Eidechse (Jobi 568).

Accipiter soloensis (Horsf.).

Gesammelt von: Platen.

Waigeu liegt an der Ostgrenze des Winterquartiers (Stresemann, *J. f. O.* 1923, p. 518).

Accipiter cirrhocephalus papuanus Rothsch. & Hart.

Gesammelt von: Stein.

1157. 8. VI. ♂2. Fl. 182; Gew. 124; Alterskleid.

Threskiornis moluccus (Cuvier).

Gesammelt von: Platen, Stein.

1672. 11. V. ♂2. Fl. 377; Schw. 168; Gew. 1750

Ardea sumatrana Raffles.

Gesammelt von: Platen, Stein.

1669. 20. VI. ♀1. Fl. 454; Gew. 2175

Demigretta sacra sacra (Gm.).

Gesammelt von : Platen, Stein.

1657. 11. VI. ♂2. Fl. 292 ; Gew. 425 ; Graublau.

Bubulcus ibis coromandus (Bodd.).

Gesammelt von : Stein.

1656. 11. V. ♀0. Fl. 239 : Gew. 250 ; Jugendkleid.

Bisher aus dem papuanischen Gebiet nur aus der Gegend von Takar östlich der Mamberanomündung nachgewiesen (vgl. Hartert, *Vög. d. palaearkt. Fauna*, ii, p. 1245).

Butorides striatus moluccarum Hartert.

Gesammelt von : Platen, Stein.

1616. 7. VI. ♂1. Fl. 182 ; Gew. 228

Die Masse stimmen mit denen überein, welche Hartert, *Vögel d. palaearkt. Fauna*, ii, p. 125, für *B. s. moluccarum* angibt (" wie *macrorhynchus*, aber kleiner, Fl. 178–182 "). In der Färbung gleicht der Waigeuvogel einem Stück von Halmahera (Heinrich Nr. 4388) und vier von Stein auf Jobi und Numfor erbeuteten Stücken. Unterseite und Hals sind bräunlicher als bei *B. s. javanicus*. Die Schnabellänge ist bei beiden gleich.

Nycticorax caledonicus subsp. ?

Gesammelt von : Beccari, Bruijn, Platen, Stein.

1660. 14. VI. ♂1. Fl. 295 ; Gew. 575 ; juv.

Die Rassenzugehörigkeit dieses jungen Stückes lässt sich leider nicht entscheiden. Über die Rassengliederung der Art vergl. Hartert, Nov. Zool. 1924, pp. 199–200.

Ixobrychus sinensis (Gm.).

Gesammelt von : Stein.

1563. 15. V. ♂2. Fl. 143,5 ; Gew. 102,5

Wahrscheinlich nur Wintergast aus Ostasien.

Phalacrocorax melanoleucus (Vieill.).

Gesammelt von : Guillemard.

Ptilinopus superbus superbus (Temm.).

Gesammelt von : Wallace, Platen, Stein.

1138. 22. V. ♂0. Fl. 133 ; Gew. 112 ; Flügelmauser, teilweise Ju. Kl.
1137. 25. V. ♀3. „ 123 ; „ 127

Übereinstimmend mit Exemplaren aus verschiedenen Teilen des papuanischen Gebietes und von Halmahera. Zum gleichen Rassenkreis stellen wir *Ptilinopus temmincki* von Celebes.

Ptilinopus pulchellus pulchellus (Temm.).

Gesammelt von : Wallace, Bernstein, Beccari, Bruijn, Guillemard, Platen, Stein.

1129.	11. V.	♂2.	Fl. 106 ;	Gew. 58	
1127.	25. V.	♂2.	„ 109 ;	„ 72	
1133.	15. V.	♂2.	„ 106 ;	„ 66	
1135.	24. V.	♂1.	„ 106 ;	„ 65	
1126.	24. V.	♂1.	„ 106,5 ;	„ 63	
1132.	13. V.	♂1.	„ 104,5 ;	„ 65	
1134.	20. V.	♂1.	„ 104 ;	„ 70	
1128.	11. V.	♂1.	„ 106 ;	„ 70	
1136.	13. V.	♂1.	„ 93 ;	„ 45 ;	juv.
1124.	25. V.	♀3.	„ 106 ;	„ 64	
1131.	11. V.	♀2.	„ 105 ;	„ 75	
1130.	22. V.	♀1.	„ 105 ;	„ 65	
1125.	21. V.	♀1.	„ 100 ;	„ 63	„

Alle, mit Ausnahme von 1136, 1131, 1125, stehen in Grossgefiedermauser. Mehrere Exemplare haben als hintere Begrenzung der roten Kopfplatte einen mehr oder weniger ausgeprägten gelben Saum.

Ptilinopus perlatus perlatus (Temm.).

Gesammelt von : Platen.

Ein von Platen gesammeltes Stück (im Besitz des Braunschweiger Naturhistor. Museums) haben wir untersucht ; es weicht in der Färbung nicht ab von Exemplaren aus Neuguinea, ist aber etwas kleiner (Platen 22. II. 1884, Waigeu, ♀, Fl. 148,5).

Ptilinopus rivolii prasinorrhous Gray.

Gesammelt von : Wallace.

Ptilinopus iozonus humeralis Wall.

Gesammelt von : Guillemard.

Ptilinopus pectoralis pectoralis (Wagler).

Ptilinopus rufipectus Gray, *Proc. Zool. Soc. Lond.* 1861, p. 432 (1862—Waigeu).

Gesammelt von : Wallace, Bernstein, Guillemard, Platen, Stein.

1118.	13. V.	♂2.	Fl. 114,5 ;	Gew. 117 ;	Flügelmauser.
1122.	15. V.	♂2.	„ 113 ;	„ 120	„
1120.	13. V.	♂1.	„ 114 ;	„ 98	„
1123.	15. V.	♂2.	„ 113 ;	„ 102	„
1119.	1. VI.	♂2.	„ 116 ;	„ 169	
1121.	26. V.	♂0.	„ 112,5 ;	„ 110	

Siehe unter Numfor (*Ptilinopus musschenbroekii*).

Ptilinopus nanus minimus subsp. nova.

Gesammelt von : Platen.

Die kleinste Art der Gattung *Ptilinopus* ist auf Waigeu nur von Dr. Platen gesammelt worden, der 6 Stück erbeutete. Wir haben drei davon untersuchen und feststellen können, dass sie einer offenbar auf Waigeu beschränkten Zwergrasse

angehören ; während *Ptilinopus nanus nanus* (terra typica Lobobai) eine Flügellänge von 80–89 mm. hat, messen die Waigeuvögel ♂ ad. 78, ♂ juv. 83, ♀ 78 mm.

Typus im Zool. Museum Berlin Nr. 27623 : Waigeu 15. I. 1884, Dr. Platen leg.

Megaloprepia magnifica alaris subsp. nova.

Gesammelt von : Wallace, Bernstein, Guillemard, Platen, Stein.

1591.	20. V.	♂3.	Fl. 160 ;	Gew. 125
1590.	17. V.	♂.	„ 157 ;	„ 158
1589.	20. V.	♀1.	„ 157,5 ;	„ 187

Der Vergleich dieser drei Stücke mit 2 Stücken von der Berau-Halbinsel zeigte uns, dass erstere in folgenden Merkmalen von *Megaloprepia magnifica puella* abweichen : Die rostbraune Färbung an der Basis der Schwungfedern ist bei den Waigeuvögeln von viel geringerer Ausdehnung. Die Oberseite ist ein wenig gelblicher, weniger grünlich ; die Federn der Bauchseite und besonders die Unterschwanzdecken sind grüner, weniger gelblich gefärbt.

Typus : ♂ ad., Waigeu 20. Mai 1931, G. Stein leg. Nr. 1591.

Vermutlich lebt die gleiche Rasse auf Batanta und Gemien.

Ducula myristicivora myristicivora (Scop.).

Columba myristicivora Scopoli, *Del. Florae et Faunae Insubr.* ii, p. 94 (1786—ex Sonnerat ; terra typica Gébé, cf. Wichmann, *Nova Guinea*, i, p. 217).

Carpophaga fumida Wallace, *Ibis* 1865, p. 382 (1865—Waigeu).

Gesammelt von : Wallace, Bernstein, Guillemard, Platen, Stein.

1644.	30. V.	♂2.	Fl. 254 ;	Gew. 600	
1621.	29. V.	♂2.	„ 238 ;	„ 530	
1646.	29. V.	♂2.	„ 258 ;	—	Flügelmauser.
1641.	29. V.	♂2.	„ 257 ;	„ 500	
1642.	14. VI.	♂2.	„ 261 ;	„ 550	
1623.	29. V.	♀2.	„ 250 ;	„ 565	
1643.	13. VI.	♀2.	„ 244 ;	„ 550	
1422.	30. V.	♀1.	„ 249 ;	„ 575	„
1645.	29. V.	♀0.	„ 244 ;	„ 475	„

Die Systematik der Duculaformen, welche ähnlich gefärbt sind wie *Ducula myristicivora*, bereitet grosse Schwierigkeiten. Dass das Vorhandensein eines Höckers an der Basis des Oberschnabels kein Gattungsmerkmal (" *Globicera* ") ist, haben schon Rothschild & Hartert, *Nov. Zool.* Bd. viii, 1901, p. 111, hervorgehoben ; ja, wir vermögen in diesem Charakteristikum nicht einmal ein Artkennzeichen zu erblicken und tragen kein Bedenken, Formen mit und solche ohne Schnabelhöcker in demselben Rassenkreis zu vereinigen. Es ist unseres Erachtens kein Zweifel möglich, dass *Ducula myristicivora* auf den nördlichen Inseln der Geelvink-Bai durch *Ducula geelvinkiana* geographisch vertreten wird. *Ducula myristicivora* steht ferner der allerdings weit grösseren *Ducula concinna* (Wall.) sehr nahe, welche im papuanischen Gebiet auf Pulu Babi in der Arugruppe gesammelt worden ist. Im östlichen Teil von Neuguinea gestaltet sich die Frage nach der Ausdehnung des Artenkreises insofern sehr schwierig, als dort zwei einander sehr ähnliche Arten angetroffen worden sind, die beide wohl mit gleichem Recht als geographische Vertreter der Gruppe *Ducula myristicivora* betrachtet werden können, nämlich (1) *Ducula pacifica* (Gm.), welche durch Salvadori von der Insel Tarawai angeführt worden ist, (2) *Ducula rhodinolaema* (Sclater),

welche man von der Küste der Astrolabebai kennt (vgl. Stresemann, *Arch. f. Naturg.*, 89, 1923, A.8, p. 76). Wir verzichten darauf, den Versuch zu machen, den Artenkreis über das westliche Neuguinea hinaus zu verfolgen, und möchten hier nur folgende Gliederung vorschlagen.

1. *Ducula myristicivora myristicivora* (Scop.).

Verbreitung: Sorong, Misol, Salawati, Batanta, Waigeu, Gemien, Gagie, Gebe.

2. *Ducula myristicivora geelvinkiana* (Selat.).

Von *D. m. myristicivora* unterscheidet diese Rasse sich folgendermassen: ohne Schnabelhöcker; Brust, Kehle, Kopf und Nacken dunkler grau, sodass die weisse Stirn mehr hervor tritt. Nacken ohne rosige Tönung, im übrigen der Oberseite gleich gefärbt. Bauch und Hinterbrust kräftiger weinfarbig; Unterschwanzdecken etwas dunkler kastanienbraun.

Verbreitung: Miosnom, Numfor, Biak.

Ducula concinna ist in Färbung und Grösse so verschieden von beiden, dass wir sie nur zum selben Artenkreis, aber nicht zum gleichen Rassenkreis rechnen wollen. Sie vertritt *Ducula myristicivora* auf folgenden Inseln: Aru-Inseln, Pulu Babi, Kei-Inseln.

Allen drei behandelten Formen ist gemeinsam, dass sie vorwiegend an der Küste kleiner Inseln leben und die grossen Inseln meiden.

Ducula rufigaster rufigaster (Quoy & Gaim.).

Gesammelt von: Wallace, Bernstein, Bruijn, Guillemard, Platen, Stein.

1613. 20. V. ♂1. Fl. 180; Gew. 350
1639. 13. V. ♂3. „ 194; „ 400

Ducula pinon pinon (Quoy & Gaim.).

Columba pinon Quoy et Gaimard, *Voy.* "*Uranie*" *et* "*Phys.*" *Zool.* p. 118 (1825—Ravak [1]).

[1] *l.c.* p. 28, "tout près [Waigeu], dans la jolie petite baie de l'île Rawak. . . ."

Gesammelt von: Wallace, Bernstein, Guillemard, Platen, Stein.

1632. 11. V. ♂1. Fl. 262,5; Gew. 750
1640. 11. V. ♀1. „ 262,5; „ 775

Die beiden von Stein gesammelten Stücke weichen auf den ersten Blick von Neuguinea-Exemplaren ab durch sehr intensive Kastanienfarbe, die sich vom Bauch bis zur Kropfregion hinaufdehnt und auch die Vorderbrust, die sonst fast grau erscheint, kräftig tönt. Sie unterscheiden sich ferner von anderen Exemplaren dieser Rasse durch viel schwärzlichere, weniger graue Farbe des Bürzels und der Oberschwanzdecken, der Unterflügeldecken, Axillaren und der Unterseite der Schwingen. Die Handschwingen sind an der Innenseite schwarz mit einer breiten grauen Spitze. Bei näherer Untersuchung ergab sich, dass die auffälligen Unterschiede lediglich hervorgerufen worden sind dadurch, dass die Federn mit einer dünnen Fettschicht überzogen sind; sie sind wahrscheinlich mit Benzin gewaschen, in dem etwas Fett gelöst war, oder aber das Hautfett ist postmortal in die Federn eingezogen. Werden Taubenfedern fettig, so kommt die optische Wirkung der feinen Hornschüppchen, die als Puder alle Strahlen bedecken, nicht mehr zur Geltung.

Myristicivora bicolor (Scop.).

Columba bicolor Scopoli, *Del. Flor. et Faun. Insubr.* ii, p. 94 (ex Sonnerat; terra typica Gébé; cf. Wichmann, *Nova Guinea*, i, p. 217).
Salvadori, *Ibis*, 1886, p. 153.

Gesammelt von: Platen.

Von Nehrkorn fälschlich als *Myristicivora melanura* bestimmt (vgl. Salvadori *l.c.*).

Columba vitiensis halmaheira (Bonap.).

Gesammelt von: Wallace.

Reinwardtoena reinwardti griseotincta Hart.

Gesammelt von: Wallace, Bernstein, Guillemard, Platen, Stein.

1614. 16. VI. ♀1. Fl. 235

Mageninhalt: Harte Kerne (1614). Viele Steinchen und harte Samen (Jobi 261). Fruchtfleisch und kleine Kerne (Jobi 487).

Macropygia amboinensis doreya Bonap.

Gesammelt von: Wallace, Platen, Stein.

1569. 27. V. ♂2. Fl. 164,5; Gew. 131
1570. 3. VI. ♂1. „ 165,5; „ 115; Flügelmauser.

Die beiden ♂♂ von Waigeu lassen sich von solchen aus dem Arfakgebirge nicht unterscheiden. Wir haben Exemplare dieser Rasse vor uns von Waigeu, Manokwari und dem Arfakgebirge. Sie scheint nach der Literatur den ganzen Vogelkopf und ausser Waigeu auch noch Misol, Kofiao, Salawati und Batanta zu bewohnen. Hiervon unterscheidet sich sehr deutlich die Rasse *M. a. kerstingi* Reichenow und zwar dadurch, dass den Federn von Kehle und Brust beim Männchen die schwarze Querbänderung völlig oder nahezu fehlt. Diese Rasse lebt auf Jobi sowie an der Nordküste von Neuguinea, vom Mamberano ostwärts bis zum Saruwagedgebirge, und wird weiter im Osten durch eine Rasse abgelöst, die *M. a. cinereiceps* sehr ähnlich ist (vgl. Mayr, *Mitteil. des Zool. Mus. Berlin* Bd. 17, 1931, p. 707). Auf die Insel Numfor beschränkt ist die Rasse *maforensis* Salvadori. Ihre Unterseite ist im männlichen Geschlecht wie bei *doreya* schwarz gebändert, aber die Unterschwanzdecken sind ebenso wie die Analgegend heller, der Oberkopf grauer, nicht so braun.

Mageninhalt: Harte Samen und Steinchen (1569), hartholzige Fruchtschalen und Kerne (1570), Magen leer (Jobi 361).

Gallicolumba rufigula rufigula (Jacq. & Puch.).

Gesammelt von: Bernstein.

Chalcophaps stephani stephani Reichenbach.

Gesammelt von: Wallace, Bernstein, Platen, Stein.

1588. 1. VI. ♂1. Fl. 144; Gew. 129; Flügelmauser.

Henicophaps albifrons albifrons Gray.

Henicophaps albifrons Gray, *Proc. Zool. Soc. Lond.* 1861, p. 432, pl. 44 (1862—Waigeu).

Gesammelt von : Wallace, Bernstein, Bruijn, Guillemard, Platen, Stein.

1611. 9. VI. ♂1. Fl. 194

Mageninhalt : Samen und Steinchen.

Goura cristata minor Schlegel.

Goura coronata minor Schlegel, *De Dierentuin*, p. 208 (1864—" Papoesche eilanden " = Waigeu).

Gesammelt von : La Billardière, Lesson, Wallace, Bernstein, Beccari, Guillemard, Platen, Stein.

1668.	10. VI.	♂.	Fl. 350 ;	Gew.	1875
1671.	25. V.	♂.	„ 365 ;	„	2410
1674.	25. V.	♀.	„ 345 ;	„	1675
1667.	27. V.	♀.	„ 344 ;	„	1850
1666.	25. V.	♀.	„ 333 ;	„	1875
1659.	10. VI.	♀.	„ 318 ;	„	—
1673.	13. V.	?.	„ 333 ;	„	2000
1662.	22. V.	?.	„ 323 ;	„	—

Wir können die Angaben Schlegels und Salvadoris, dass sich Exemplare von Waigeu durch geringere Grösse von solchen unterscheiden, die auf der Berau-Halbinsel gesammelt worden sind, durchaus bestätigen und wenden daher auf die ersteren den Rassennamen *minor* an. Die Waigeu-Rasse scheint auch die Insel Batanta zu bewohnen. Als terra typica von *Columba cristata* Pallas fixieren wir Fak-fak (auf der Onim-Halbinsel).

Mageninhalt : Grobkörnige Masse ; Steine, glasige Samen in Stücken.

Caloenas nicobarica nicobarica (L.).

Gesammelt von : Bruijn, Guillemard.

Tadorna radjah radjah (Garnot).

Gesammelt von : Guillemard.

Stiltia isabella (Vieillot).

Gesammelt von : Wallace.
Zugvogel aus Australien.

Esacus magnirostris (Vieillot).

Gesammelt von : Bruijn, Platen.
Brutvogel.

Charadrius dominicus fulvus Gm.

Gesammelt von : Bruijn, Platen, Guillemard.
Zugvogel aus Ostasien.

Charadrius leschenaulti Less.

Gesammelt von : Platen, Guillemard.
Zugvogel aus dem palaearktischen Gebiet.

Charadrius mongolus mongolus (Pall.).

Gesammelt von : Platen.
Zugvogel aus dem palaearktischen Gebiet.

Actitis hypoleucos (L.).

Gesammelt von : Bernstein, Guillemard, Platen.
Zugvogel aus dem palaearktischen Gebiet.

Tringa glareola (L.).

Gesammelt von : Guillemard.
Zugvogel aus dem palaearktischen Gebiet.

Tringa incana brevipes (Vieillot).

Gesammelt von : Bernstein, Guillemard.
Zugvogel aus Nordostsibirien.

Calidris acuminata (Horsf.).

Gesammelt von : Guillemard.
Zugvogel aus Nordostsibirien.

Numenius phaeopus variegatus (Scop.).

Gesammelt von : Bernstein, Beccari, Platen.
Zugvogel aus Ostsibirien.

Sterna bergii cristata Stephens.

Gesammelt von : Wallace, Bruijn, Platen, Stein.

1658. 21. VI. ♂2. Fl. 343

Reines Brutkleid ohne weissen Federn in der schwarzen Kopfplatte.

Eulabeornis tricolor tricolor (Gray).

Rallina tricolor G. R. Gray, *Proc. Zool. Soc. London*, p. 188 (1858—Aru Islands).

Gesammelt von : Bernstein, Platen, Stein.

1561. 29. V. ♀2. Fl. 154 ; Gew. 239

Das einzige von Stein gesammelte Stück, ein ♀, ist ungewöhnlich stark gestreift auf dem Bauche. "Nest mit 3 weissen Eiern" ? ! ! Stücke, die in der Gefangenschaft gelegt wurden, sind gefleckt.

Megapodius freycinet freycinet Quoy & Gaim.

Megapodius freycinet Gaimard, *Férussac Bull.* vol. ii, p. 451 (1823—Waigeu).

Gesammelt von : Quoy & Gaimard, Lesson, Beccari, Bruijn, Guillemard, Platen, Stein.

1649.	26. V.	♂1.	Fl. 233 ;	Gew. 700
1647.	3. VI.	♂1.	„ 238 ;	„ 610
1650.	2. VI.	♂1.	„ 235 ;	„ —
1651.	15. V.	♂1.	„ 233 ;	„ 600
1652.	10. VI.	♀2.	„ 232 ;	„ 610
1648.	25. V.	♀2.	„ 222 ;	„ 670

Ganz mit einer Serie von Halmahera übereinstimmend.

Aepypodius bruijnii (Oust.).

Talegallus bruijnii Oustalet, *Comp. Rend. Acad. Sc. Paris*, vol. xc, p. 906 (1880—Waigeu); Oustalet, *Annales des Sciences Naturelles*, 6. Serie, Bd. 11, 1881, pp. 38–40 (Mit Abbildung).

Gesammelt von: Bruijn.

Diesen interessanten Vogel, einen der merkwürdigsten Endemismen von Waigeu, hat Herr Stein trotz aller Bemühungen nicht in seinen Besitz bringen können. Die Eingeborenen kannten kein anderes Grossfusshuhn als *Megapodius freycinet*. Es sind nur Exemplare dieser Art bekannt, die von Bruijn's Sammlern erbeutet wurden, nämlich 2 Exemplare: 1 ad. und 1 juv. im Pariser Museum, 1 ad. im Mus. Turati (vgl. Salvadori, *Orn. Pap.* iii, p. 253), und 7 Exemplare im Tring-Museum.

II. DIE VÖGEL VON NUMFOR.

BEARBEITET VON LORD ROTHSCHILD (PSITTACI), ERWIN STRESEMANN UND KNUD PALUDAN (EINLEITUNG UND DIE ÜBRIGEN GRUPPEN).

EINLEITUNG.

Die kleine Insel Numfor oder Mafor ragt auf steilem Sockel aus der Geelvinkbai auf. Von der Berau-Halbinsel wird sie durch eine breite Rinne getrennt, die über 1000 m. tief ist; und auf den anderen Seiten, gegen Biak und Miosnom hin, fällt der Sockel bis zu über 500 m. Tiefe ab. Dass die insuläre Selbständigkeit Numfors von hohem Alter ist, wird durch die Vogelwelt bezeugt, welche sich zwar im wesentlichen von derjenigen Neuguineas ableiten lässt, jedoch eine weit nähere Verwandtschaft zu der Vogelwelt der Schouteninseln (Biak und Supiori) bekundet, die wir hier dem neueren Sprachgebrauch folgend kurz als Biak bezeichnen wollen. Wie gross die avifaunistische Übereinstimmung zwischen Numfor und Biak ist, geht aus der vergleichenden Übersicht hervor, die wir weiterin folgen lassen wollen. Es ist dabei noch zu bemerken, dass sie sich vielleicht als noch grösser herausstellt, wenn erst einmal Biak so gut durchforscht sein wird, wie das jetzt für Numfor der Fall zu sein scheint.

ERFORSCHUNGSGESCHICHTE.

v. Rosenberg (1869). Die eigenartige Vogelwelt von Numfor blieb völlig unbekannt, bis der in holländischen Kolonialdiensten stehende Deutsche Hermann von Rosenberg auf einer Forschungsreise nach den Inseln der Geelvinkbai einen Aufenthalt von 6 Wochen (19. Januar bis 2. März 1869) auf Numfor nahm. Er sammelte eine Anzahl von Vögeln und sandte sie an Hermann Schlegel nach Leiden, der aus dieser Ausbeute einige prachtvolle Novitäten beschrieb, nämlich *Pitta novaeguineae mafoorana*, *Tanysiptera carolinae*, *Nasiterna pygmaea geelvinkiana*, *Ptilopus speciosus*, *Ptilopus musschenbroekii* und *Carpophaga geelvinkiana* (H. von Rosenberg, *der Malayische Archipel*, *Leipzig*, 1878, pp. 494–500).

Meyer (1873). Wenige Jahre später erhielt die Insel einen kurzen Besuch von dem deutschen Zoologen Dr. Adolf Bernhard Meyer, dem nachmaligen Direktor des Zoologischen Museums in Dresden. Sein Schoner lag zwar nur 3 Tage (19.–22. März) 1873 vor der Insel Manem (dicht vor Numfor) vor Anker

und seine Jäger sammelten nur 2 Tage lang auf Numfor selbst,[1] aber während dieser wenigen Tage entdeckten sie einige der merkwürdigsten Endemismen der Insel, die Meyer bald danach selbst beschrieben hat, wie *Myiagra atra*, *Phylloscopus maforensis*, *Cinnyris sericeus maforensis* und *Coracina lineata maforensis*.

Beccari (1875). Nur 2 Jahr danach landete Odoardo Beccari auf Numfor, um zoologisch zu sammeln. Sein Aufenthalt, während dessen auch die Insel Manem besucht wurde, währte vom 26. Mai bis 1. Juni (Beccari, *Nuova Guinea, Selebes e Molucche*; Firenze 1924). Aus seiner Ausbeute beschrieb Salvadori *Macropygia amboinensis maforensis*, *Dicaeum geelvinkianum maforense* und *Edolisoma morio neglectum*.

Doherty (1897). Im Auftrage des Tring-Museums legte William Doherty im Mai und Juni 1897 eine Sammlung von (leider unansehnlichen) Vogelbälgen auf Numfor an.

Stein (1931). Herr Georg Stein unternahm es auf eigenen Antrieb, der Insel von 10. bis 25. April einen Besuch abzustatten. Er hat dort, wie es seine Art ist, äusserst intensiv gesammelt und nicht allein die meisten der von Numfor bereits bekannten Arten in wunderschönen Bälgen eingesandt, sondern die Liste der Numforvögel um mehrere Arten bereichert, nämlich:

Corvus coronoides orru Bp.
Aplonis metallicus inornatus (Salvad.).
Cracticus cassicus (Bodd.).
Collocalia vanicorensis steini Stres. & Pal.
Geoffroyus geoffroyi subsp. ?
Butorides striatus moluccarum Hart.
Phalacrocorax melanoleucus (Vieill.).
Ptilinopus superbus superbus (Temm.).

BERICHT DER EXPEDITION STEIN.

Auf der Rückfahrt von Japen nach Manokwari hatten wir Gelegenheit, in Numfor an Land zu gehen, wo wir schon bei diesem sehr flüchtigen Aufenthalt eine kleine *Micropsitta* (*geelvinkiana*) und die auffallende *Tanysiptera carolinae* sahen. Als dann der holländische Beamte in Manokwari zu einer Inspektionsreise nach Numfor fuhr, wollten wir diese günstige und billige Gelegenheit nicht vorübergehen lassen und schlossen uns kurzerhand an. Die kleine Insel Numfor besteht ganz aus Korallenkalk, ist ohne Erhebungen und bis auf die Umgebung der Papuadörfer ganz mit primärem Urwald bestanden. Numfor gilt als Hochburg der christlichen Mission; wir haben Eingeborene von einer derartigen Indolenz wie die Numforleute auch nie wieder getroffen. Es gelang mir überhaupt nicht einen Eingeborenen zu finden, der Lust hatte für mich Vögel zu jagen, ganz abgesehen von der Fähigkeit. Wir waren vom 11.–27. IV. 1931 auf Numfor und mussten uns in Anbetracht der kurzen Zeit darauf beschränken, in der Umgebung des Kampongs Namber zu sammeln. Sehr auffallend war bei den meisten Vogel-Arten der Reichtum an Individuen im Gegensatz zu der geringen Artenzahl, die die Insel beherbergt. Täglich wurden Scharen von *Eos cyanogenia* und *Macruropsar* getroffen. Die schöne *Tanysiptera carolinae*

[1] A. B. Meyer, Auszüge aus den auf einer Neu-Guinea-Reise im Jahre 1873 geführten Tagebüchern. 2°. Dresden, 1875. Kritik seiner Angaben bei A. Wichmann, *Nova Guinea*, ii. 1910, p. 167.

wäre in beinahe unbegrenzten Serien zu sammeln gewesen, *Phylloscopus*, *Myiagra*, die grossen Fruchttauben waren gleichfalls sehr häufig. Nur einmal, bei unserem ersten Aufenthalt auf der Insel, wo ich ohne Flinte war, wurde ein grosser *Centropus* beobachtet, von dem es offen bleiben muss, ob er zu *chalybeus* gehört.

VERZEICHNIS DER BRUTVÖGEL.

		Numfor.	*Biak.*
Corvidae	Corvus coronoides	orru	orru
Sturnidae	Aplonis metallicus	inornatus	inornatus
	Macruropsar magnus	brevicauda	magnus
Dicruridae	Dicrurus bracteatus	carbonarius	carbonarius
Meliphagidae	Myzomela simplex	—	rubrobrunnea
Zosteropidae	Zosterops mysorensis	—	mysorensis
Nectariniidae	Cinnyris jugularis	frenata	frenata
	Cinnyris sericea	maforensis	mysorensis
Dicaeidae	Dicaeum geelvinkianum	maforense	mysoriense
Laniidae	Cracticus cassicus	cassicus	cassicus
	Myiolestes megarhynchus	—	melanorhynchus
	Pachycephala phaeonota	phaeonota	—
Muscicapidae	Monarcha cinerascens	steini	geelvinkiana ?
	Monarcha alecto	chalybeoceph.	chalybeoceph.
	Monarcha brehmi	—	brehmi
	Monarcha chrysomela	—	kordensis
	Rhipidura leucophrys	melaleuca	melaleuca
	Rhipidura rufiventris	—	kordensis
	Myiagra atra	atra	atra
	Phylloscopus	maforensis	misoriensis
	Gerygone hypoxantha	—	hypoxantha
	Todopsis cyanocephalus	—	mysorensis
Campophagidae	Coracina lineata	maforensis	—
	Edolisoma morio	neglectum	meyeri
	Lalage atrovirens	—	leucoptera
Pittidae	Pitta sordida	mafoorana	rosenbergi
Macrochires	Hemiprocne mystacea	mystacea	mystacea
	Collocalia esculenta	spilura	spilura
	Collocalia vanicorensis	steini	—
Podargi	Podargus papuensis	papuensis	—
Caprimulgi	Caprimulgus macrurus	—	subsp. ?
Striges	Otus beccarii	—	beccarii
Halcyones	Alcyone azurea	lessoni	lessoni
	Tanysiptera	carolinae	riedelii
	Halcyon saurophaga	saurophaga	saurophaga
Cuculi	Cacomantis variolosus	obscuratus	subsp. ?
	Chalcites malayanus	—	mysoriensis
	Centropus chalybeus	?	chalybeus
Psittaci	Cacatua galerita	triton	triton
	Micropsitta geelvinkiana	geelvinkiana	mysoriensis
	Eclectus roratus	maforensis	biaki

		Numfor.	*Biak.*
Psittaci	Geoffroyus geoffroyi	mysoriensis (?)	mysoriensis
	Lorius lory	—	cyanauchen
	Eos cyanogenia	cyanogenia	cyanogenia
	Trichoglossus haematodus	haematodus	rosenbergii
Accipitres	Pandion haliaetus	cristatus	—
	Haliastur indus	girrenera	girrenera
	Henicopernis longicauda	—	longicauda
	Baza subcristata	—	reinwardtii
	Accipiter novaehollandiae	leucosomus	mysoriensis
Gressores	Nycticorax caledonicus	subsp. ?	subsp. ?
	Egretta intermedia	plumifera	—
	Butorides striatus	moluccarum	—
	Ardea sumatrana	—	sumatrana
Steganopodes	Phalacrocorax melanoleuc.	melanoleuc.	—
Columbae	Ptilinopus superbus	superbus	—
	Ptilinopus rivolii	prasinorrhous	—
	Ptilinopus speciosus	speciosus	speciosus
	Ptilinopus musschenbroekii	musschenbr.	musschenbr.
	Ptilinopus pectoralis	subsp. ?	—
	Ducula myristicivora	geelvinkiana	geelvinkiana
	Macropygia amboinensis	maforensis	subsp. ?
	Reinwardtoena reinwardti	—	minor
	Myristicivora spilorrhoa	—	spilorrhoa
	Goura victoria	—	victoria
	Caloenas nicobarica	nicobarica	nicobarica
	Chalcophaps indica	minima	minima
Limicolae	Esacus magnirostris	—	magnirostris
Galli	Megapodius freycinet	geelvinkianus	geelvinkianus
	Talegallus jobiensis	—	jobiensis

ZUR BESIEDLUNGSGESCHICHTE VON NUMFOR UND BIAK.

Die Avifauna von Numfor und Biak nimmt eine eigenartige Stellung ein. Sie zeugt dafür, dass diese Inseln ihre Selbständigkeit schon lange besessen hatten, bevor Japen und Miosnom, Misol und die Aru-Inseln, ja wohl sogar bevor Waigeu und Batanta von Neuguinea losgelöst wurden. Sie werden wohl in der Tertiärzeit mit Neuguinea vorübergehend in Landverbindung gestanden haben, aber durchaus gewiss ist das nicht ; man kann sich auch vorstellen, dass Numfor und Biak alle Landwirbeltiere übers Meer hinweg empfingen.

Von Biak sind 57, von dem weit kleineren Numfor 48 Brutvögel bekannt geworden. Unter diesen befinden sich einige, die beiden Inseln als Endemismen gemeinsam sind und keine näheren Verwandten mehr besitzen, so :

Macruropsar magnus, eine endemische Gattung, vielleicht ableitbar von *Aplonis cantoroides*.

Myiagra atra, ohne nähere Verwandte.

Phylloscopus maforensis bezw. *misoriensis*, entfernt verwandt der weitverbreiteten Gruppe *Phylloscopus trivirgatus*.

Micropsitta geelvinkiana, entfernt verwandt der Gruppe *Micropsitta pusio*.

Eos cyanogenia, ohne nähere Verwandte.

Ptilinopus speciosus, ein alter Spross der *rivolii*-Gruppe.

Nur auf Biak, nicht aber auf dem festlandsnäheren (freilich auch viel kleineren) Numfor leben als auffällige Endemismen :

Otus beccari, die einzige *Otus*-Art des papuanischen Gebietes, von ungeklärter Verwandtschaft.
Monarcha brehmi, ohne nähere Verwandtschaft.
Gerygone hypoxantha, ohne nähere Verwandte.
Zosterops mysorensis, vermutlich in die Verwandtschaft von *Zosterops fuscicapilla* und *Zosterops delicatula* gehörig.
Myzomela rubrobrunnea, sehr ähnlich der nordmolukkischen *Myzomela simplex* und vermutlich mit dieser nahe verwandt.

Numfor ist nicht in entsprechender Weise ausgezeichnet, es sei denn durch *Tanysiptera carolinae*, die sich als ein stark modifizierter Abkömmling der Gruppe *Tanysiptera hydrocharis* zu erkennen gibt und auf Biak durch die (weit weniger eigenartige) *Tanysiptera hydrocharis riedelii* vertreten wird.

Einige Arten, die im Tiefland Nord-Neuguineas verbreitet sind, werden (meist in endemischen Rassen) auf Biak, nicht aber auf Numfor angetroffen :

Rhipidura rufiventris (*kordensis*).
Todopsis cyanocephalus (*mysorensis*).
Myiolestes megarhynchus (*melanorhynchus*).
Monarcha chrysomela (*kordensis*).
Lalage atrovirens (*leucoptera*).
Lorius lory (*cyanauchen*).
Reinwardtoena reinwardti (*minor*).
Goura victoria (*victoria*).
Talegallus jobiensis (*jobiensis*).

Von diesen mögen *Rhipidura*, *Myiolestes*, *Lorius*, *Reinwardtoena*, *Goura* und *Talegallus* über Japen auf Biak eingewandert sein, denn diese Arten gehören auch der Japen-Fauna an. Einen anderen Weg müssen zumindest *Todopsis*, *Monarcha* und *Lalage* gewählt haben, denn sie kommen auf Japen nicht vor. Vermutlich haben sie eine Landbrücke benutzt, welche Biak mit der Gegend der Mamberanomündung verband, und als deren Reste die Padaido-Inseln (= Verräter-Inseln) aus einer ziemlich flachen Schelfsee aufragen.

Wie Biak einige papuanische Rassenkreise vor Numfor voraushat, so sind auch einige papuanische Arten nur nach Numfor, aber nicht nach Biak gelangt :

Coracina lineata (*maforensis*).
Podargus papuensis (*papuensis*).
Ptilinopus superbus (*superbus*).

Diese 3 Arten dürften Numfor direkt von Neuguinea aus, vielleicht übers Meer hinweg, erreicht haben.

Die Ablösung Numfors von Biak datiert vermutlich weit zurück. Gegen diese Annahme lassen sich alle jene Fälle, in denen die Biakrasse mit der Numforrasse noch völlig übereinstimmt (vgl. die Tabelle auf Seite 190), nicht ins Feld führen, denn für viele Vogelarten bedeuten Meeresschranken kein Ausbreitungshindernis. Von theoretischer Wichtigkeit dagegen ist das Vikariieren von Rassen oder gar Arten auf Numfor und Biak wie :

Phylloscopus maforensis—Phylloscopus misoriensis.
Tanysiptera carolinae—Tanysiptera hydrocharis.
Cinnyris sericea maforensis—mysoriensis.
Dicaeum geelvinkianum maforense—mysoriense.

Zuweilen steht die Biak-Rasse, meist aber steht die Numfor-Rasse derjenigen von Neuguinea morphologisch näher, sofern sich eine Entscheidung in dieser Hinsicht überhaupt treffen lässt. Die Biakrasse ist der letzteren ähnlicher bei: *Tanysiptera*. Die Numforrasse ist der letzteren ähnlicher bei: *Accipiter novaehollandiae*, *Trichoglossus*, *Eclectus*.

Wenn auch die meisten Arten, die auf Biak und Numfor vorkommen, sich von solchen ableiten lassen, die noch heute an den Gestaden der Geelvinkbai wohnen, so gilt das doch durchaus nicht für alle, und dieses "Fremdelement" in der Avifauna der beiden Inseln muss eingewandert sein, als die Küstenlinie von Neuguinea einen wesentlich anderen Verlauf hatte als heute. Beispiele:

Chalcophaps indica minima ist am nächsten verwandt der *Chalcophaps indica indica*, die von Westen her nur bis an den Westrand der westlichen papuanischen Inseln, nämlich bis Gebe und Kofiao, verbreitet ist.

Ducula myristicivora (auf Biak und Numfor in der scharf differenzierten Rasse *geelvinkiana* lebend) kommt nirgends an den Ufern der Geelvinkbai oder an der Nordküste des Vogelkopfes vor, sondern findet sich erst wieder auf den westlichen papuanischen Inseln, angefangen mit Waigeu. Eine ganz ähnliche Verbreitung wie diese grosse Fruchttaube hat *Megapodius freycinet*.

Myzomela rubrobrunnea ist keiner anderen *Myzomela*-Art so ähnlich wie der *Myzomela simplex*, einer Bewohnerin der Nord-Molukken.

Pachycephala phaeonota bewohnt im papuanischen Gebiet ausser Numfor nur noch die westlichen papuanischen Inseln (Waigeu, Misol, Salawati).

Otus beccarii, eine Ohreule von Biak, die bisher nur nach dem Typus bekannt ist, ist im ganzen papuanischen Gebiet die einzige Vertreterin der Gattung *Otus*. *Otus*-Arten leben erst wieder auf den Molukken, eine aberrante Art auch auf den Palau-Inseln.

Die Gattung *Myiagra*, auf Biak und Numfor durch *M. atra* vertreten, fehlt der ganzen Nordküste von Neuguinea und ebenso den westlichen papuanischen Inseln, findet sich dagegen auf den Nordmolukken.

Fassen wir zusammen:

Die Inseln Biak und Numfor besitzen unter ihrer Avifauna sehr altertümliche Elemente. Teilweise haben diese ihre nächsten Verwandten gegenwärtig in sehr weit abgelegenen Gebieten, z. B. auf den Nord-Molukken. Biak hat später einen Zustrom von Osten her, über die Padaido-Inseln hinweg, vielleicht auch von Japen her empfangen; Numfor ist vermutlich mehrfach von der Nordwestküste der Geelvinkbai und von Miosnom her, vielleicht übers Meer hinweg, besiedelt worden. Ein zeitweiser Zusammenhang von Biak und Numfor ist wahrscheinlich, wenn auch die gegenwärtige weitgehende Übereinstimmung in der Avifauna beider Inseln mit der Annahme eines über Meeresschranken hinweg erfolgten Formenaustausches erklärt werden könnte.

SYSTEMATISCHER TEIL

Corvus coronoides orru Bonap.

Gesammelt von: Stein.

949. 23. IV. ♀₀. Fl. 304; Schw. 166; Gew. 450; Ju. Kl.

Diese Krähe war bisher von den Inseln der Geelvink-Bai noch nicht bekannt. Herr Stein sammelte sie nicht nur auf Numfor, sondern auch auf Japen.

Aplonis metallicus inornatus (Salvad.).

Calornis inornata Salvadori, *Ann. Mus. Civ. Gen.* vol. xvi, p. 194 (1880—Korido, Misori).

Gesammelt von : Stein.

865.	13. IV.	♂1.	Fl. 107,5 ;	Schw. —	Gew. 58,7
843.	12. IV.	♂0.	„ 100,5 ;	„ 82,5 ;	„ 52
899.	13. IV.	♀2.	„ 98 ;	„ 80,5 ;	„ 55,7

Neu für Numfor, da bisher nur von Biak bekannt. Sowohl Salvadoris Beschreibung wie drei zum Vergleich vorliegende Stüeke aus dem Tring Museum stimmen gut mit unseren Stücken überein.

Macruropsar magnus brevicauda v. Oort.

Macruropsar magnus brevicauda van Oort, *Not. Leyd. Mus.* vol. xxx, p. 70 (1908—Numfor).

Gesammelt von : v. Rosenberg, Beccari, Doherty, Stein.

♂♂ ad. (10.–24. IV.)	Fl. 108–109–113–114²–115–116–116,5–118–118,5–119–120,5–122²–123.
	Schw. 142–147–148–149³–158²–158,5–162–170²–172,5.
	Gew. 83,5²–84²–85²–88,5–89–91³–95²–100².
♀♀ ad. (10.–24. IV.)	Fl. 108–112–113–114–114,5–115–117–119.
	Schw. 132–138–140–143–145–155².
	Gew. 80–81–83–88–90–92–99–104.
♂♀ juv. (15.–24. IV.)	Fl. 114²–114,5–116.
	Schw. 107–115–118.
	Gew. 80,5–81²–82.

9 ♂♂ und alle ♀♀ in Flügelmauser.

Diese lange Serie bestätigt aufs beste das für die Rasse *brevicauda* van Oort angegebene Kennzeichen, nämlich die im Vergleich zur Biak-Form viel geringere Schwanzlänge (132–172,5 gegen 190–257 mm.).

Ju. Kl. (Stein leg. Nr. 884–886–890) : Oberseite schwarzbraun mit grünlich schimmernden Federsäumen. Der Schimmer ist weit schwächer als beim ad. ; die Säume des Oberkopfes sind nicht so deutlich. Unterseite schwarzbraun mit besonders an der Brust schmalen schwarzen Federzentren. Schnabel schwarz (wie beim ad.). Schwanz kurz : juv. 107–115–118 gegen ad. ♂♂ 142–172,5 und ad. ♀♀ 132–155 mm.

" Urwaldstar, *sehr* häufig. Iris nicht rot, sondern hellbraun. Nester ein grosser Klumpen hoch auf Bäumen aus Reisern, Gras etc. Brütet anscheinend in mehrerer Paaren in einem Nest (3–4 Vögel an einem Nest) " (Stein).

Dicrurus bracteatus carbonarius Bonap.

Gesammelt von : A. B. Meyer, Doherty, Stein.

906.	17. IV.	♂1.	Fl. 146,5 ;	Gew. 79	
921.	12. IV.	♂0.	„ 150 ;	„ 87,5 ;	Schwanzmauser.
907.	15. IV.	?.	„ 150,5 ;	„ 80	
922.	16. IV.	" ♂ ? "	„ 152 ;	„ 84	
910.	14. IV.	♀0.	„ 139 ;	„ 64,5 ;	II. Kleid.

Kein Unterschied von Exemplaren aus Manokwari.

" Gesang ausserordentlich abwechslungsreich mit vielen krächzenden, pfeifenden Lauten ; wahrscheinlich Spötter " (Stein).

Cinnyris jugularis frenata (S. Müll.).

Gesammelt von: Doherty, Stein.

691. 12. IV. ♂3. Fl. 55,5; Gew. 8
760. 21. IV. ♂2. „ 54;
761. 15. IV. ♂2. „ 55; „ 9
759. 21. IV. ♂1. „ 54; „ 10,3; juv. Mauser.

Verglichen mit 4 ♂♂ aus Manokwari sind diese ♂♂ von Numfor auf der Unterseite ein wenig kräftiger schwefelgelb gefärbt.

Cinnyris sericea maforensis (A. B. Meyer).

Chalcostetha aspasia var. *maforensis* Meyer, *Sitzungsber. K. Akad. Wiss. Wien*, vol. lxx, p. 123 (1874—Numfor).

Gesammelt von: A. B. Meyer, Doherty, Stein.

♂♂ (10.–24. IV.) Fl. 61,5–62³–63³.
Gew. 9–10²–10,1–10,5²–11.
♀♀ (12.–24. IV.) Fl. 55,5–56²–56,5²–57.
Gew. 8–8,8–9,3–9,5–9,7–10.
3 ♂♂ hatten noch einzelne erste Jahreskleidsfedern, 1 ♂ und 1 ♀ in Flügelmauser.

Bei gleichem Lichteinfall schillert der Oberkopf bei *C. s. maforensis* goldgrün, bei *sericea* blaugrün. Das metallische Kehlschild reicht bei *maforensis* etwas weiter herab als bei *sericea*. Beim ♀ sind die Steuerfedern oberseits schwarzblau mit olivfarbenen Säumen; dem ♀ von *sericea* fehlt die Säumung der Steuerfedern.

Dicaeum geelvinkianum maforense Salvad.

Dicaeum maforense Salvadori, *Ann. Mus. Civ. Gen.* vol. vii, p. 944 (1875—Numfor).

Gesammelt von: A. B. Meyer, Beccari, Doherty, Stein.

♂♂ ad. (11.–23. IV.) Fl. 50²–51–52²–53; Gew. 7,2–7,3–7,5–7,7–8.
♂ juv. 23. IV. Fl. 49,5; Gew. 7.
♀♀ ad. (10.–22. IV.) Fl. 45–46–47–48; Gew. 6,7–7,2–7,5.
♀ juv. 22. IV. Fl. 48,5; Gew. 7,9.
Alle ad. in Flügelmauser.

Die Rasse unterscheidet sich von den ihr nächstverwandten Rassen *D. g. geelvinkianum*, Jobi und *D. g. misoriense*, Biak durch folgende Kennzeichen: roter Brustfleck grösser, Oberschwanzdecken bräunlich rot statt leuchtend rot.

Das Weibchen hat im Gegensatz zum Männchen den Oberkopf nur sehr wenig braunrot gefärbt.

"Nahrung hauptsächlich Loranthus-Früchte, jedoch auch kleine saftige Beeren. Junge werden mit Insekten aufgezogen, Lockruf unbedeutend zip-zip."

Cracticus cassicus (Bodd.).

Gesammelt von: Stein.

939. 23. IV. ♂2. Fl. 171; Gew. 162

Pachycephala phaeonota (S. Müll.).

Gesammelt von: v. Rosenberg, A. B. Meyer, Beccari.

Als Bewohnerin ganz kleiner Inselchen (siehe unter Waigeu) scheint diese Art nicht auf Mafor selbst, sondern nur auf der vorgelagerten Insel Pulu Manin vorzukommen, wo Beccari 6 Stück sammeln konnte. Zwei davon befinden sich im Berliner Museum: Nr. 26667, 30. V. 1875, ♂ Fl. 86 und Nr. 26666, 26. V. 1875, ♀ Fl. 82 mm.

Monarcha cinerascens steini subsp. nova.

Gesammelt von: Beccari, Doherty, Stein.

819. 15. IV. ♂₀. Fl. 88
809. 25. IV. ♀₀. „ 80; Gew. 21,5

Rothschild & Hartert haben die von Doherty auf Numfor gesammelten Stücke als *M. c. geelvinkiana* bestimmt, ohne sie mit den Typen verglichen zu haben. Diese sind uns durch die Freundlichkeit von Dr. Meise zugänglich gemacht worden, und es stellte sich heraus, dass der Numforvogel von der auf Jobi und Korido beschränkten Rasse *M. c. geelvinkiana* ausserordentlich deutlich abweicht, denn er ist in der grauen Tönung sehr viel heller und in den rotfarbenen Tönen dunkler. Unter allen bekannten Rassen von *M. cinerascens* ist die Numforform am ähnlichsten der Rasse *M. c. cinerascens* von den Key- und Südwestinseln. Von dieser unterscheidet sie sich dadurch, dass die graue Tönung besonders an Kehl-, Kopf- und Brustseiten noch heller, fast silbergrau ist. Keine andere Rasse ist in dieser Region so hell gefärbt wie die von Numfor, die wir Herrn Stein widmen.

Typus: ♀ ad. Numfor 25. April 1931, G. Stein leg. No. 809.

Monarcha alecto chalybeocephala (Garnot).

Gesammelt von: A. B. Meyer, Doherty, Stein.

♂♂ (12.–24. IV.) Fl. 86,5–87,5–88,5–89²; Gew. 26²–26,5–28.
♀♀ (11.–24. IV.) Fl. 76,5–77–79–83–83,5–84; Gew. 21,5–23,8–25³.
3 ♂ und 1 ♀ in Flügelmauser.

In der Färbung stimmt diese Serie völlig mit einer solchen aus Waigeu und Jobi überein, aber die Flügellänge ist vielleicht im Mittel ein wenig geringer; sie variiert nach unseren Messungen folgendermassen:

Numfor: ♂♂ 86,5–89, ♀♀ 76,5–84.
Jobi: ♂♂ 89–91, ♀♀ 81,5–87.
Waigeu: ♂♂ 88–91.

Rhipidura leucophrys melaleuca (Quoy & Gaim.).

Gesammelt von: Doherty, Stein.

807. 24. IV. ♂₂. Fl. 107; Gew. 35
815. 15. IV. ♂₁. „ 107,5; „ 39
816. 15. IV. ♀₁. „ 103,5; „ 35; Flügelmauser.
830. 24. IV. ♀₀. „ 102,5; „ 31

Myiagra atra A. B. Meyer.

Myiagra atra Meyer, *Sitzungsber. K. Akad. Wiss. Wien*, vol. lxix, p. 498 (1874—Biak, Numfor).

Gesammelt von: A. B. Meyer, Beccari, Doherty, Stein.

♂♂ ad. (10.–24. IV.) Fl. 70,5–71²–72²–72,5³–73²–74².
Schw. 53–54²–54,5–55,5–56²–56,5²–57–58–59.
Gew. 13,5–14²–14,2–14,5²–15²–15,2³–16.
♂ juv. (20. IV.) Fl. 70; Schw. 56; Gew. 14,3.
♀♀ (11.–24. IV.) Fl. 65,5–67–70²–71.
Schw. 51,5–53–54–55.
Gew. 12²–13–13,5–15,1.
2 ♂♂ und 3 ♀♀ in Flügelmauser. Die ad. ♀♀ und die juv. sind gleich gefärbt.

Dieser eigenartige Vogel, der ausser auf Numfor und dem zugehörigen Inselchen Pulu Manim nur noch auf Biak lebt, gehört einer Gattung an, die an der Nord- und Westküste Neuguineas vollkommen fehlt, und deren Vorkommen auf den Inseln der Geelvinkbai zu den zoogeographischen Merkwürdigkeiten dieses Gebietes gehört.

" Benehmen ganz rotschwanzartig mit Schwanzschütteln. Der Vogel kommt nicht auf den Boden, lebt höher im Gezweig des Urwaldes " (Stein).

Phylloscopus maforensis (A. B. Meyer).

Gerygone maforensis Meyer, *Sitzungsber. K. Akad. Wiss. Wien*, vol. lxx, p. 119 (1874—Numfor).

Gesammelt von : A. B. Meyer, Doherty, Stein.

736.	25. IV.	♂2.	Fl. 59,5 ;	Schw.	36,5 ;	Gew.	10,2		
758.	19. IV.	♂2.	„ 57 ;	„	37 ;	„	10,5		
751.	23. IV.	♂1.	„ 57 ;	„	36,5 ;	„	10,1		
753.	21. IV.	♂1.	„ 59,5 ;	„	36,5 ;	„	10		
755.	21. IV.	♂1.	„ 56,5 ;	„	34,5 ;	„	9		
752.	25. IV.	♂1.	„ 56,6 ;	„	35,5 ;	„	10,5		
738.	14. IV.	♂1.	„ 58,5 ;	„	36,5 ;	„	11 ;	Flügelmauser.	
757.	11. IV.	♂1.	„ 58 ;	„	35,5 ;	„	10,5		
754.	23. IV.	♀0.	„ 52,5 ;	„	34 ;	„	10,3		
756.	22. IV.	♀0.	„ 53 ;	„	32,5 ;	„	8		
770.	21. IV.	?.	„ 51 ;	„	33,5 ;	„	8,5		

Diese interessante Art war bisher nur nach dem Typus bekannt, der sich im Dresdener Museum befindet, und nach zwei schlechten Bälgen, die das Tring-Museum besitzt. Schon Rothschild & Hartert haben ihre Zugehörigkeit zur Verwandtschaftsgruppe des *Phylloscopus giulianettii* erkannt. Wir halten sie für eine etwas aberrante Angehörige des weitverbreiteten Artenkreises, zu welchem auf Java die Form *trivirgatus*, auf den Philippinen die Form *olivaceus*, auf Celebes die Form *sarasinorum*, auf Neuguinea die Formen *poliocephalus* und *giulianettii* gehören. *Phylloscopus maforensis* unterscheidet sich von den beiden soeben erwähnten Formen, welche die hohen Berge Neuguineas bewohnen, nicht nur durch die Oekologie und die Färbung, sondern auch durch die Struktur des Schnabels, der an der Basis etwas breiter ist ; ferner ist der Unterschnabel an der Ventralseite flacher und erhebt sich nicht so deutlich zu einem Kiel wie bei *giulianettii* und *poliocephalus*. *Ph. maforensis* dürfte auf Numfor ein ebenso altes Element darstellen wie *Macruropsar magnus*, *Myiagra atra*, *Micropsitta geelvinkiana*, *Eos cyanogenys* u. a. Da Meyers Beschreibung (*l.c.*) ungenau ist, lassen wir eine erneute Beschreibung folgen :

Federn der *Oberseite* dunkelgrau mit olivgrünen Säumen, die von vorn nach hinten allmählich breiter werden, wodurch die Oberseite folgende Färbung annimmt : Stirn grau, Kopf grau mit schmalen Säumen, Interscapulium olivgrün mit grauer Federbasis, Bürzel und Oberschwanzdecken olivgrün. Flügeldeckfedern und Schwingen schwärzlich mit kräftig olivgrünen Aussensäumen ; Steuerfedern ebenso gefärbt, aber die olivfarbenen Säume matter, äusseres Paar mit sehr schmalem weissen Innensaum, welcher auch am 2. Paar noch schwach angedeutet ist. *Unterseite* blassgrau mit vorn schmalen, hinten breiten grünlichgelben Säumen, die auf den Körperseiten in Grau übergehen. Unterschwanzdecken blass grünlichgelb. Zügelfedern grau mit weissen Zentralflecken. Ohrdeckfedern grau mit hellerem Schaftstrich. Über und hinter dem Auge eine

Andeutung einer helleren Augenbraue. Axillaren weiss mit olivgelben Säumen; Unterflügeldecken graubraun, äussere mit breiten olivgelben, innere mit breiten weissen Säumen. Schwingen mit schmalen weissen Innensäumen. Oberschnabel schwarzbraun mit helleren Schneiden und heller Spitze; Unterschnabel hellgelblich; Füsse dunkelhaarbraun.

Auf Biak wird dieser Vogel vertreten durch *Phylloscopus misoriensis* Meise [NOV. ZOOL. 36, 1931, p. 318, Fussnote 1, nomen novum für *Sericornis ? trochiloides* Salvad. (1878—Misori), nec *Phylloscopus trochiloides* (Sundevall 1838)].

Coracina lineata maforensis (A. B. Meyer).

Campephaga maforensis Meyer, *Sitzungsber. K. Akad. Wiss. Wien*, vol. xlix, p. 386 (1874—Numfor).

Gesammelt von: A. B. Meyer, Beccari, Doherty, Stein.

911.	20. IV.	♂1.	Fl. 130;	Gew. 69
913.	11. IV.	♂1.	„ 126;	„ 63,5
908.	19. IV.	♀0.	„ 120;	„ 56
912.	11. IV.	♀0.	„ 128,5;	„ 60,5

Diese durch ihren Geschlechtsdimorphismus interessante Rasse ist auf die Insel Numfor beschränkt und hat keinen geographischen Vertreter auf Biak. Über die geographische Variation siehe Stresemann, *Arch. für Naturgesch.* 1923, A. 8, p. 18.

Das ♀ gleicht ganz dem ♀ von *C. l. axillaris*, hat aber Brust und Kehle etwas dunkler.

Edolisoma morio neglectum Salvad.

Edolisoma neglectum Salvad., *Ann. Mus. Civ. Gen.* vol. 15, p. 36 (1880—Numfor).

Gesammelt von: A. B. Meyer, Beccari, Doherty, Stein.

♂♂ ad. (29. III.–12. IV.)	Fl. 116–117–118–119–121–121,5–123.
	Gew. 61–62–62,5–63–68.
♀♀ (15.–21. IV.)	Fl. 115–118,5–119.
	Gew. 60–62–67.

4 ♂♂ und alle ♀♀ in Flügelmauser. 2 von den ♀♀ haben schwarze Flecke an der Brust.

Edolisoma morio neglectum ist auf Numfor beschränkt und wird auf Biak durch die deutlich verschiedene Rasse *meyeri* vertreten; vgl. Stresemann, *Arch. für Naturgesch.* 1923, A. 8. p. 21.

Mageninhalt: Insekten, hauptsächlich Heuschrecken (924).

Pitta sordida mafoorana Schlegel.

Pitta novaeguineae mafoorana Schleg., *Mus. Pays Bas III, Revue Pitta*, p. 8 (1874—Numfor).

Gesammelt von: v. Rosenberg, Beccari, Doherty, Stein.

811.	11. IV.	♀1.	Fl. 102;	Gew. 71,5
810.	16. IV.	?.	„ 98,5;	„ 67,5; juv.

Diese deutlich gekennzeichnete Rasse wird auf Biak durch *Pitta sordida rosenbergi* vertreten, welcher sie mehr ähnelt als der Neuguineararasse *novaeguineae*.

Hemiprocne mystacea mystacea (Lesson).

Gesammelt von: Doherty.

Collocalia esculenta spilura Gray.

Gesammelt von: v. Rosenberg, Stein.

713.	25. IV.	♂1.	Fl. 101,5;	Gew. 6,2		
721.	25. IV.	♂1.	„ 98;	„ 6,3;	Flügelmauser.	
724.	22. IV.	♂1.	„ 98;	„ 7,1		„
698.	25. IV.	♂1.	„ 98;	„ 6,5		
728.	18. IV.	♂1.	„ 101;	„ 7		
723.	25. IV.	♂1.	„ 95;	„ 7,1		„
694.	25. IV.	♂1.	„ 98;	„ 6,4		
662.	29. III.	♂0.	„ 98,5;	„ —		„
729.	18. IV.	♂0.	„ 95,5;	„ 5,8		
685.	16. IV.	♂0.	„ 98,5;	„ 6,7		„
692.	16. IV.	♂0.	„ 100;	„ 6,3		
687.	16. IV.	♀3.	„ 98,5;	„ 7,5		„
702.	25. IV.	♀2.	„ 100;	„ 6,4		
720.	25. IV.	♀1.	„ 99,5;	„ 6,6		„
697.	16. IV.	♀1.	„ 93,5;	„ 6,3		„
712.	16. IV.	♀0.	„ 96;	„ 7,7		
693.	25. IV.	♀0.	„ 98,5;	„ 6,1		
722.	25. IV.	♀0.	„ 101;	„ 6		
695.	18. IV.	♀0.	„ 98;	„ 7		
684.	25. IV.	♀.	„ 100,5;	„ 6,6		
700.	21. IV.	♀0.	„ 96,5;	„ 7		
725.	23. IV.	♀0.	„ 97;	„ 6,5		
701.	25. IV.	?.	„ —	„ 6,8;	juv.	

Wir vermögen im Gebiet von Celebes, Nord-Molukken und Neuguinea zu unterscheiden:

Collocalia esculenta viridinitens Gray.

20 Vögel aus Celebes (Heinrich leg. 1931) haben die Oberseite mehr glänzend grün, Kehle, Brust und Körperseiten mit ziemlich stark grünlichem Metallglanz (nicht ungefähr einfarbig grau wie bei Vögeln von Numfor, Halmahera, Sepik und Saruwagedgebirge). Oberseits sind einzelne Federn oft blau (oder nur teilweise blau), statt grün. Bauch weiss und ebenso scharf abgesetzt gegen die dunklere Brust wie bei Vögeln von der Nordküste Neuguineas zwischen Jobi und Saruwagedgebirge. Weisser Fleck an der Wurzel der Innenfahne der äusseren Steuerfedern gross und reinweiss.

Collocalia esculenta spilura Gray.

Bauch nicht reinweiss wie bei *viridinitens*, sondern infolge der grossen schwarzen Federzentren schwarzgrau gesprenkelt. Weisser Fleck an der Basis der Innenfahne der äusseren Steuerfedern kleiner als bei *viridinitens* oder ganz fehlend (1 Exemplar). Kehl- und Brustfedern ohne den starken metallisch grünen Glanz von *viridinitens*. Von Halmahera-Exemplaren vermögen wir nach Färbung und Grösse nicht zu trennen die Serie von Numfor, während das einzige Exemplar von Waigeu auf Oberseite, Flügel und Schwanz durch intensiven violettblauen statt grünlichblauen Schiller höchst auffällig abweicht, aber es mag sich um eine individuelle Variation handeln.

Collocalia esculenta subsp.

Ein Stück aus Japen, 3 vom Sepikgebiet und 4 vom Saruwagedgebirge unterscheiden sich scharf von der Serie aus Numfor durch den reinweissen

Bauch. Sie gleichen in dieser Hinsicht der Celebes-Rasse. Flügellänge: 97,5–101–103–105–106–108–109 mm.

Mit den Exemplaren aus Deutsch Neuguinea stimmen in Grösse und Färbung ziemlich gut überein zwei Exemplare aus dem Weylandgebirge, sie unterscheiden sich aber von allen anderen von uns untersuchten Exemplaren aus Neuguinea dadurch, dass die weisse Zeichnung auf die Basalregion der Innenfahnen der 2. und 3. Steuerfedern beschränkt ist und auf den äussersten Steuerfedern völlig fehlt. Durch dieses Merkmal nähern sie sich der Rasse *C. e. nitens* O.-Grant, welche nach einem Exemplar vom Utakwafluss (2900 Fuss) beschrieben worden ist und sich ausser durch geringe Grösse (Fl. 92 mm.) durch völligen Mangel der weissen Zeichnung an den Schwanzfedern auszeichnen soll. Wahrscheinlich gibt es auf Neuguinea viel mehr unterscheidbare Rassen als wir bisher wissen, die ausgeprägteste darunter ist wohl *C. e. maxima* Og.-Grant, die nach einem Stück vom Utakwafluss (8000 Fuss) beschrieben worden ist. Über die geographische Variation auf den Salomon-Inseln vgl. Mayr, *Amer. Mus. Nov.* 486, 1931, pp. 15–17.

Collocalia vanikorensis steini Stres. & Pal.

Gesammelt von: Stein.
Siehe unter Waigeu.

Podargus papuensis papuensis Quoy & Gaim.

Gesammelt von: v. Rosenberg, Beccari, Stein.

954.	11. IV.	♀1.	Fl. 275;	Schw. 253;	Gew. 335
936.	25. IV.	♀1.	„ 252;	„ 231;	„ 225
950.	14. IV.	♀1.	„ 282;	„ 273;	„ 300

In der Grösse gut übereinstimmend mit einer Serie von Jobi; dagegen ist ein altes ♀ von Manokwari (Stein leg. Nr. 603) mit Fl. 304, Schw. 292, Gew. 375 grösser.

Die Oberseite der drei Numforweibchen erscheint auffällig dunkel, und der Oberkopf hat deutlichere gelblichweisse Fleckung, als das bei unserer Jobiserie der Fall ist, doch möchten wir auf diese Tatsache angesichts der grossen individuellen Variabilität von *Podargus papuensis* kein Gewicht legen.

Merops ornatus Latham.

Gesammelt von: Doherty (Mai 1897).

Eurystomus orientalis pacificus (Latham).

Gesammelt von: Doherty (Mai 1897).

Alcyone azurea lessonii Cassin.

Gesammelt von: Beccari.

Tanysiptera carolinae Schlegel.

Tanysiptera carolinae Schlegel, *Ned. Tijdschr. Dierk.* vol. iv. p. 13 (1871—Numfor).

Gesammelt von: v. Rosenberg, A. B. Meyer, Beccari, Doherty, Stein.

♂♂ ad. (29. III.-24. IV.)	Fl. 105,5-106-107²-108-109,5-110²-110,5-111.
	Schw. 170-174-184-187-197-202.
	Gew. 63-63,5-64-65,5-69².
♀♀ ad. (29. III.-22. IV.)	Fl. 106,5-107,5-108-109-109,5-110,5-112-113.
	Schw. 152-161-162-174.
	Gew. 64,5-65,2-68,5-71,7-74²-75.
♂♀ juv. (12.-25. IV.)	Fl. 107,5²; Gew. 54-55-58-61.

3 ♂♂ und 4 ♀♀ in Grossgefiedermauser. "Schnabel rot, Füsse grünlich."

Diese schöne, für Numfor endemische Art lässt sich mit dem reich gegliederten Rassenkreis *Tanysiptera hydrocharis* zu einem Artenkreis zusammenschliessen. Es ist geradezu unverständlich, dass Mathews für die Numforform ein besonderes Subgenus, *Edquista*, geschaffen hat. Merkwürdigerweise weicht der geographische Vertreter von *T. carolinae* auf Biak (*T. hydrocharis riedelii* Verreaux) weit weniger stark von den Neuguinearassen ab. Die auffälligen Unterschiede zwischen *carolinae* und *hydrocharis* gehen wesentlich darauf zurück, dass in die Federn der ganzen Unterseite von *carolinae* schwarzes Melanin eingewandert ist, das erst die nötige Vorbedingung schafft, um die Blaustruktur zur Geltung zu bringen. Man kann also hier in gewissem Sinne von Inselmelanismus sprechen. Sehr eigenartig ist Form und Färbung der mittleren Schwanzfedern bei *carolinae*. Sie sind nämlich scharf in einen weissen basalen, einen blauen subapicalen und einen weissen apicalen Bezirk gegliedert, und nur in den beiden weissen Bezirken ist die Federfahne normal ausgebildet, während sie im blauen Gebiet zu ganz kurzen, borstenartigen und strahlenlosen Rami reduziert ist, also ganz anders als bei *hydrocharis*, wo auch das blaue Gebiet der Feder eine gut ausgebildete, wenngleich stark verschmälerte Fahne trägt. Bemerkenswert ist ferner, dass das mittlere Schwanzfederpaar weit kürzer ist als bei der anderen Art, nämlich nur: ♂ 170–202, ♀ 152–174 (gegen ♂ 221–260, ♀ 198–255 bei *hydrocharis meyeri*).

"Gewöhnlich recht niedrig im Urwald sitzend; Rufe an ♀ von *Cuculus canorus* erinnernd, aber mehr schäckernd. Eier nach Angabe der Eingeborenen in Ameisennestern" (Stein).

Mageninhalt: Heuschrecken (846), Heuschrecken, 1 Schnecke (835), grosse Käfer (831).

Halcyon saurophaga saurophaga Gould.

Gesammelt von: v. Rosenberg, Stein.

904.	19. IV.	♂₁.	Fl. 127;	Gew. 117;	Flügelmauser.
905.	18. IV.	♂₁.	„ 125;	„ 131	„
902.	19. IV.	♀₂.	„ 127;	„ 139	
903.	18. IV.	♀₀.	„ 127;	„ —	„

Halcyon sancta sancta Vigors & Horsf.

Gesammelt von: Doherty.
Zugvogel aus Australien.

Cacomantis variolosus obscuratus subsp. nova.

Gesammelt von : A. B. Meyer, Doherty, Stein.

735. 22. IV. ♂1. Fl. 122 ; Schw. 113,5 ; Gew. 36
737. 11. IV. ♂1. „ 128 ; „ 116 ; „ 40
739. 12. IV. ♂1. „ 127 ; „ 112 ; „ 33

Schon Salvadori (*Orn. Pap.* i, p. 340) fand, dass ein Stück dieses Kuckucks von Numfor (A. B. Meyer leg.) der Population von Ternate sehr ähnlich sei, aber doch davon unterschieden werden könne und zwar—wie er meinte—durch die Grösse besonders des Schnabels. Seither sind die Bewohner der Nordmolukken durch Hartert von denjenigen Neuguineas unter dem Namen *C. v. oblitus* abgetrennt worden (Nov. Zool. xxxii, 1925, p. 167). Wir finden mit Salvadori, dass die Numforvögel dem *C. v. oblitus* ähnlicher sind als der Neuguinearasse *C. v. infaustus*, aber doch nicht ganz mit jenem übereinstimmen. *C. v. oblitus* unterscheidet sich von *C. v. infaustus* durch im Mittel etwas bedeutendere Flügellänge (120–130 gegen 114–122) und hellere Tönung, besonders der Unterseite, was sowohl in den grauen wie in den rostfarbenen Federpartien zum Ausdruck gelangt und besonders deutlich an den Unterschwanzdeckfedern ist. Bei *oblitus* sind die Füsse und die Basis des Unterschnabels am Balg bräunlich, nicht so gelblich gefärbt wie bei *infaustus*. *C. v. obscuratus* stimmt in allen diesen Merkmalen gut mit *oblitus* überein, hat aber dunkler graue Kopf- und Halsseiten, wenn auch nicht so dunkle wie *infaustus*. Flügel : 122–127–128.

Typus : ♂ ad., Numfor, 17. April 1931, Stein leg. Nr. 739.

Centropus species ?

Herr Stein sah auf Numfor einen *Centropus*, ohne ihn erlegen zu können. Möglicherweise handelt es sich um die auf Biak lebende Art *Centropus chalybaeus* Salvad.

Kakatoe galerita macrolopha (Rosenberg).

Gesammelt von : v. Rosenberg, Beccari, Stein.

947. 22. IV. ?. Fl. 303 ; Gew. 575
960. 12. IV. ?. „ 281 ; „ 450

Siehe unter Waigeu.

Micropsitta geelvinkiana geelvinkiana (Schleg.).

Nasiterna pygmaea geelvinkiana Schlegel, *Ned. Tijdschr. Dierk.* vol. iv, p. 7 (1871—Numfor).

Gesammelt von : v. Rosenberg, Beccari, Doherty, Stein.

♂♂ ad. (12.–26. IV.) Fl. 56–57²–58¹–59²–60¹.
Gew. 12,5–12,8–13²–13,2–13,5–13,6–13,7–14¹.
♀♀ ad. (12.–25. IV.) Fl. 54–55–56²–57²–58.
Gew. 10,5–11²–12–12,2–12,5–13.

Die wunderbare Serie von 22 Stück wird wohl für alle Zeiten feststellen, dass die Form aus Numfor leicht von der aus Misori abzutrennen ist. Salvadori hat den von Schlegel gegebenen Namen verworfen, weil dieser die zwei Formen unter demselben Namen aufführt, obgleich er die Unterschiede betont ; da aber Schlegel ganz sicher Numfor (Mafor) als ersten Fundort angibt, muss der Name *geelvinkiana* für den Vogel dieser Insel gebraucht werden.

" Lockruf zit-zit-zit-zit-zit schnell wiederholt beim Fliegen, auch zieh. Nest angeblich in Ameisennestern " (Stein).

Mageninhalt : Fein zerkleinerte Samen (668).

Eclectus roratus maforensis subsp. nova.

Gesammelt von: v. Rosenberg, Stein.

964.	12. IV.	♂$_2$.	Fl. 265;	Gew. 350	
965.	14. IV.	♂$_1$.	„ 263;	„ 325	
957.	17. IV.	♂$_1$.	„ 263;	„ 325	
959.	11. IV.	♂$_1$.	„ (250);	„ 350;	in Flügelmauser.
961.	12. IV.	♂.	„ 260;	„ 325	
962.	11. IV.	♀$_0$.	„ 235;	„ 310	
963.	16. IV.	♀$_0$.	„ 240;	„ 225	
958.	12. IV.	♀.	„ 253;	„ 350	

Die Rassenunterschiede treten besonders deutlich im weiblichen Geschlecht hervor. ♀ ad. am nächsten *E. r. aruensis*, aber noch dunkler; mehr dunkel blutrot auf dem Rücken, Bürzel & Flügel; Federn mit helleren Säumen, welche bei *E. r. pectoralis* und *E. r. aruensis* fehlen. Hand- und äussere Armschwingen glänzender tief blau; die Aussenränder vergissmeinnichtblau statt grünlich wie bei *E. r. pectoralis*, gleichfarbig mit dem Rest der Aussenfahne wie bei *E. r. aruensis*, Schwanz dunkler blutrot, die helle Spitze schmäler, seitliche Aussenfahnen grün überflogen statt hellrot; Vorderbrust dunkler und düsterer als bei *E. r. pectoralis* und *E. r. aruensis*. Flügellänge 225–238 mm.

♂ ad. Rücken, Flügel, Bürzel und Hinterhals etwas dunkler und düsterer grün. Flügellänge 255–262 mm.

Typus: ♀ No. 962, 11. April 1931, Numfor.

Geoffroyus geoffroyi subsp. ?

Gesammelt von: Stein.

901.	13. IV.	♂$_1$.	Fl. 170;	Gew. 168;	ad.
1520.	V.	♂$_1$.	„ 164;	„ —	; juv. in Numfor gekauft und gestorben.
923.	26. IV.	♀$_1$.	„ 171;	„ 172	
928.	20. IV.	♀$_0$.	„ 172;	„ 156	
926.	19. IV.	♀.	„ 172;	„ 165	

Diese Form steht in der Färbung *G. g. mysoriensis* Meyer am nächsten, aber da das eine alte ♂ in voller Mauser ist, lässt es sich meines Erachtens nicht sicher abtrennen; aber es ist auch nicht ratsam, es damit zu vereinigen, da die rote und die blaue Färbung auf dem Oberkopf nicht so weit zu reichen scheint als bei Biak-Stücken.

" Flug taubenartig mit Schwankungen unter wiegenden Bewegungen des Körpers " (Stein).

Eos cyanogenys Bp.

Eos cyanogenia Bonaparte, *Consp. Av.* i. p. 4 (1850—ohne Fundort).

Gesammelt von: v. Rosenberg, A. B. Meyer, Doherty, Stein.

♂♂ ad. (11.–23. IV.) Fl. 153–157–158–159^2–161^3–162^2–163–164–167^3–168–169.
Gew. 135–145,5–146–147–150,5–152–155–160^2–160,5–164^3–165,5–167,5–169,5–175.

♀♀ ad. (11.–23. IV.) Fl. 154–155–156–157–158–159–163^2–164–164,5.
Gew. 130–145–147,5–149^2–155–159–163–168.

Herr Stein hat eine ganz hervorragende Serie von 28 Stück bekommen. Das einzige junge Exemplar zeigt viel mehr Schwarz auf Rücken und Interscapulium und weniger Rot auf Hinterkopf und Hinterhals; die roten Federn

des Ober- und Hinterkopfes und Halses sowie die ganze Unterseite haben dunkel purpurblaue Ränder.

"Sehr häufig auf Numfor. Flug gerade, schwirrend. Vögel nicht paarweise zusammen. Nahrung: Blüten (?) von hohen Urwaldbäumen."

Trichoglossus haematodus haematodus (L.).

Gesammelt von: v. Rosenberg.

Pandion haliaetus cristatus (Vieillot).

Gesammelt von: v. Rosenberg, Beccari.

Haliastur indus girrenera (Vieillot).

Gesammelt von: v. Rosenberg, Stein.

946. 19. IV. ♂1. Fl. 351; Gew. 425

Accipiter novaehollandiae leucosomus (Sharpe).

Gesammelt von: v. Rosenberg, Doherty, Stein.

935.		"♂." (♀!)	Fl. 236;	Gew. 305;	weiss.; "Füsse und Iris gelb."
937.	11. IV.	♀0.	„ 239;	„ 266;	weiss.
930.	21. IV.	♀0.	„ 237 + x;	„ 337,5;	weiss.
955.	16. IV.	♀.	„ 235;	—	juv. Gefärbte Phase.

Auffälligerweise gehören unter den vier von Stein gesammelten Exemplaren nicht weniger als drei der weissen Phase an. v. Rosenberg erbeutete ein weisses und ein gefärbtes Stück. Die weisse Mutante scheint also auf Numfor besonders häufig zu sein.

Hier liegt eine Art vor, die auf Numfor in derselben Rasse auftritt wie auf Neuguinea, während Biak eine kleinere (endemische) Rasse, *Accipiter novaehollandiae misoriensis* (Salvad.), beherbergt.

Egretta intermedia plumifera (Gould).

Gesammelt von: Beccari.

Butorides striatus moluccarum Hartert.

Gesammelt von: Stein.

952.	17. IV.	♂2.	Fl. 181,5	
944.	28. IV.	♂2.	„ 183;	Gew. 226
938.	15. IV.	♀3.	„ 181;	„ 246

Siehe unter Waigeu.

Phalacrocorax melanoleucus melanoleucus (Vieillot).

Gesammelt von: Stein.

940. 21. IV. ♂3. Fl. 232; Gew. 575

Ptilinopus superbus superbus (Temm.).

Gesammelt von: Stein.

943. 13. IV. ♂3. Fl. 132; Gew. 111
942. 13. IV. ♂1. „ 128; „ 113,5
Beide in Flügelmauser.

Neunachweis für Numfor, unbekannt von Biak.

Ptilinopus rivolii prasinorrhous Gray.

Gesammelt von : v. Rosenberg, A. B. Meyer, Beccari.

Von v. Rosenberg und A. B. Meyer auf Numfor, von Beccari nur auf der kleinen Insel Pulu Manim erbeutet. Die Verbreitung dieser Taube ist eine sehr merkwürdige und erklärt sich wohl daraus, dass der Vogel kleine flache Inseln zum Aufenthalt wählt und wie so manche anderen Vogelarten die Küste und das Innere grosser Inseln meidet, mit Ausnahme von Seran und Buru, wo er hauptsächlich im Gebirge angetroffen worden ist ; so bewohnt er ausser den Kei-Inseln und der Inselkette zwischen Keiinseln und Seran die westlichen papuanischen Inseln und in der Geelvinkbai die Inseln Numfor, Japen, die Padaido-Inseln und Ron, ist aber niemals auf Neuguinea selbst angetroffen worden. Die gleiche Vorliebe für kleine Inseln scheint *Ptilinopus r. rivolii* und *P. r. strophium* zu haben, während *Ptilinopus bellus*, welche Rothschild & Hartert in den Rassenkreis *P. rivolii* gestellt haben, auf die Gebirge von Neuguinea beschränkt ist, also oekologisch stark abweicht und wohl besser als eigene Art aufgefasst wird. Das Verhältnis von *P. rivolii* zu *P. bellus* ist analog dem Verhältnis von *Pachycephala pectoralis* zu *P. soror*.

Ptilinopus speciosus Schlegel.

Ptilopus speciosus Schlegel, *Nederl. Tijdschr. Dierk.* vol. iv, p. 23 (1871—Numfor und Soek).

Gesammelt von : v. Rosenberg, Beccari, Bruijn, Doherty, Stein.

♂♂ (10.-24. IV.) Fl. 109-111-112²-113,5-114²-115²-116.
Gew. 77,2-77,5-82,5-86,7-87-88-91²-92-102.
♀♀ (10.-24. IV.) Fl. 109²-111 ; Gew. 78-82-85.
2 ♂♂ und 2 ♀♀ in Flügelmauser.

Diese Art wird sowohl von Rothschild & Hartert, Nov. Zool. viii, 1901, p. 108, wie von Mayr, *Am. Mus. Nov.* Nr. 504, 1931, p. 9, in den Rassenkreis *Ptilinopus solomonensis* gestellt ; wir vermögen uns aber aus morphologischen und zoogeographischen Gründen dieser Gruppierung nicht anzuschliessen, sondern betrachten *Ptilinopus speciosus* als eine Art, die sich ebenso wie *Ptilinopus solomonensis*, aber ohne Zusammenhang mit dieser, von der *rivolii*-Gruppe abgezweigt hat und in ihrem Wohngebiet, nämlich den Inseln Numfor und Biak, wozu offenbar später auch Japen, Korido und die Padaido-Inseln hinzugekommen sind, infolge langer Isolierung Artcharaktere erwarb, ehe diese Inseln übers Meer hinweg zum zweiten Male von der *rivolii*-Gruppe in Gestalt von *Ptilinopus rivolii prasinorrhous* besiedelt wurden.

Ptilinopus musschenbroekii Schlegel.

Ptilopus musschenbroekii Schlegel, *Nederl. Tijdschr. Dierk.* vol. iv, p. 23 (1871—Numfor, Miosnom, Soek).

Gesammelt von : v. Rosenberg, Beccari, Bruijn, Doherty, Stein.

941.	14. IV.	♂₂.	Fl. 111,5 ;	Gew.	100,5
927.	11. IV.	♂₂.	„ 109 ;	„	97
853.	12. IV.	♂₁.	„ 112 ;	„	80,5 ; Flügelmauser, noch Reste des Ju. Kl.
860.	15. IV.	♀₂.	„ 107,5 ;	„	86,5
861.	12. IV.	♀₂.	„ 108 ;	„	99,4
852.	11. IV.	♀₁.	„ 104,5 ;	„	115
898.	24. IV.	♀₁.	„ 108,5 ;	„	98
862.	24. IV.	♀₁.	„ 106 ;	„	80

Ptilinopus musschenbroekii ist auf die Inseln Numfor, Biak Miosnom und Jobi beschränkt ; sie gehört zur Gruppe des *Ptilinopus viridis*, die für die Probleme

der Artbildung ebenso wertvolle Beispiele geliefert hat wie die Gruppe *Ptilinopus rivolii*. Die *viridis*-Gruppe setzt sich zusammen aus drei Arten, nämlich *Ptilinopus viridis*, *Ptilinopus pectoralis* und *Ptilinopus musschenbroekii*. Von diesen ist *Ptilinopus viridis* auf die Südmolukken beschränkt. Die Geschlechter sind gleich gefärbt, beide sind durch ein grosses rotes Kehlschild geziert. Dieses letztere Merkmal fehlt den ♀♀ der im papuanischen Gebiet vorkommenden Arten *P. pectoralis* und *P. musschenbroekii*; sie sind also geschlechtsdimorph. Man würde sie beide in denselben Rassenkreis stellen, wenn sie nicht beide nebeneinander auf Japen vorkämen. Wir haben hier offenbar folgendes anzunehmen: *Ptilinopus musschenbroekii* hat sich aus dem *pectoralis*-Stamm entwickelt, nachdem dieser von Neuguinea aus die Inseln Numfor, Miosnom und Biak besiedelt hatte; während langer Isolierung hat die Inselform Artcharaktere erworben, die es ihr ermöglichten, wieder in das *pectoralis*-Gebiet einzudringen, ohne dass eine Bastardierung zustandekam. Wir finden daher heute auf Japen sowohl die offenbar alt eingesessene *Ptilinopus pectoralis salvadorii*, als auch die vermutlich erst später von Biak her eingewanderte *Ptilinopus musschenbroekii*, und ebenso vermochte sich auf Numfor und Biak (Soek-Supiori) neuerdings *Ptilinopus pectoralis* festzusetzen, ohne sich mit der eingesessenen *Ptilinopus musschenbroekii* geschlechtlich zu vermischen.

Ptilinopus pectoralis subsp. ?

Gesammelt von: v. Rosenberg.

Ducula myristicivora geelvinkiana (Schlegel).

Carpophaga geelvinkiana Schlegel, *Mus. Pays Bas, Columbae*, vol. iv, p. 86 (1873—Miosnom, Numfor, Soek).

Gesammelt von: v. Rosenberg, Beccari, Doherty, Stein.

951.	10. IV.	♂1.	Fl. 247;	Gew. 475;	Flügelmauser.
956.	22. IV.	♀1.	„ 254;	—	
948.	10. IV.	♀1.	„ 220;	—	juv., 6 äussere Schwingen graubräunlich statt blau.

Siehe unter Waigeu!

Macropygia amboinensis maforensis Salvad.

Macropygia maforensis Salvadori, *Ann. Mus. Civ. Gen.* vol. 12, p. 429 (1878—Numfor).

Gesammelt von: v. Rosenberg, A. B. Meyer, Doherty, Stein.

932.	14. IV.	♂2.	Fl. 165;	Gew. 141;	Flügelmauser.
928.	20. IV.	♂1.	„ 168,5;	„ 136	„
931.	17. IV.	♀1.	„ 155;	„ 134;	Mauser.
945.	11. IV.	♀1.	„ 162,5;	„ 129,5;	Flügelmauser.
934.	11. IV.	♀0.	„ 160;	„ 133,5	

Siehe unter Waigeu!

Chalcophaps indica minima Hart.

Chalcophaps indica minima Hartert, *O. M. B.* xxxix, p. 144 (1931—Numfor).

Gesammelt von: Doherty, Stein.

Diese Zwergrasse ist auf die Inseln Numfor, Biak und Miosnom beschränkt. Die ihr sehr ähnliche Rasse *Chalcophaps indica indica* verbreitet sich von Ceylon und Hinterindien ostwärts nur bis an den Westrand der westlichen papuanischen Inseln, nämlich nur bis nach Gebe und Koffiao. Erst im östlichen Neuguinea,

von der Astrolabebai und dem Hallsund ostwärts, beginnt das Areal einer dritten Rasse, *Chalcophaps indica chrysochlora* (Wagler) (vgl. Stresemann, *Arch. für Naturgesch.* 1923, A. 8, p. 80).

Caloenas nicobarica nicobarica (L.).

Gesammelt von : v. Rosenberg, Beccari, Doherty.

Die sehr weit verbreitete Mähnentaube wird auch im papuanischen Gebiet nur auf kleinen Inseln gefunden. In der Geelvinkbai ist sie bekannt von Japen, Miosnom, Numfor und Biak.

Actitis hypoleucos (L.).

Gesammelt von : Stein.

808. 16. IV. ♂1. Fl. 108,5 ; Gew. 47
817. 16. IV. ♂0. „ 111 ;

Sterna bergii cristata Stephens.

Gesammelt von : Stein.

953. 19. IV. ♂1. Fl. 324 ; Gew. 274

Vollkommen ausgefärbtes Brutkleid ohne weisse Federn in der schwarzen Kopfplatte.

Megapodius freycinet geelvinkianus A. B. Meyer.

Megapodius geelvinkianus A. B. Meyer, *Sitzungsber. K. Akad. Wiss. Wien*, vol. lxix, p. 88 (1874—Numfor, Misori).

Gesammelt von : v. Rosenberg, A. B. Meyer, Beccari, Doherty, Stein.

966. 13. IV. ♀. Fl. 200 ; Gew. 525
967. 12. IV. ?. „ 194 ;
900. 13. IV. ?. „ — „ 123,5 ; pullus !

Bekannt von Numfor, Pulo Manim, Biak, Miosnom und Japen. Dies ist die einzige *Megapodiusart* von Numfor, Miosnom und Biak. Auf Japen dagegen lebt sie zusammen mit einer zweiten Art, *Megapodius affinis affinis* A. B. Meyer. *Megapodius freycinet geelvinkianus* unterscheidet sich von der Nominatform, welche die Nordmolukken und die westlichen papuanischen Inseln bewohnt und an der Nordküste des Vogelkopfes nur an kleinen der Küste vorgelagerten Inselchen wie Sorong und Pulu Hum bei Manokwari angetroffen wurde, durch die viel geringere Grösse und durch die Färbung der Füsse, welche bei *freycinet* ganz schwarz sind, während bei *geelvinkianus* die Läufe hinten rötlich gefärbt sind.

III. DIE VÖGEL VON JAPEN (= JOBI).

Bearbeitet von LORD ROTHSCHILD (Paradisaeidae, Psittaci), ERWIN STRESEMANN und KNUD PALUDAN (Einleitung und die übrigen Gruppen).

EINLEITUNG.

Die Insel Japen oder (wie sie in der ornithologischen Literatur bisher meist genannt wurde) Jobi nimmt eine Fläche von ungefähr 3480 km² ein. In Hinsicht auf ihre Fauna unterscheidet sie sich scharf von den übrigen Inseln der Geelvinkbai ; während jene auf eine lange Selbständigkeit zurückblicken können, hat

sich Japen vermutlich erst im Spätpleistocaen von Neuguinea losgelöst, und seine Vogelwelt ist daher im wesentlichen nichts anderes als eine verarmte Waropen-Fauna (Waropen ist der Name jener Landschaft, die die Ostküste der Geelvinkbai einnimmt). Die ersten Ornithologen, welche auf Japen sammelten, entdeckten dort eine ganze Reihe überraschender neuer Formen; erst später hat sich herausgestellt, dass die gleichen oder doch wenigstens sehr ähnliche Rassen an der Nordküste Neuguineas weit verbreitet sind.

ERFORSCHUNGSGESCHICHTE.

v. Rosenberg (1869). Wie die anderen Inseln der Geelvinkbai, so ist auch Japen zuerst von Hermann von Rosenberg zoologisch untersucht worden, der dort einen Monat (5. April bis 6. Mai 1869) bei Ansus zubrachte, aber freilich nur sehr wenige Vögel sammelte.

Meyer (1873). Auch auf Japen ist Adolf Bernhard Meyer der tatkräftige Nachfolger Rosenbergs gewesen. Sein Besuch erstreckte sich über 3 Wochen (8.–29. April 1873). Er liess gleichfalls bei Ansus sammeln, seine Jäger gelangten aber bei ihren Streifen auch ins Gebirge. Im ganzen gelang es ihm, gegen 70 Vogelarten festzustellen, von denen er *Philemon novaeguineae jobiensis*, *Zosterops minor*, *Pitohui kirrhocephalus jobiensis*, *Myiolestes megarhynchus obscurus*, *Pachycephala griseiceps jobiensis*, *Arses telescophthalmus insularis*, *Gallicolumba jobiensis*, *Talegallus jobiensis* und andere auffällige Formen beschrieb. Eine seiner überraschendsten Entdeckungen, *Accipiter meyerianus*, ist von Sharpe bekannt gegeben worden.

Beccari (1875). Odoardo Beccari hielt sich 1875 zweimal kurz auf Jobi auf: 4.–14. April bei Ansus, 11.–14. Dezember bei Seroei. Er hat die Zahl der von Jobi bekannten Vögel nur unwesentlich vermehren können.

Bruijn (etwa 1875–1885). Die eingeborenen Jäger A. A. Bruijns-Ternate und teilweise auch sein Handelsagent Léon Laglaize haben von Jobi viele Bälge eingesandt, die zum grössten Teil an Salvadori gelangten. Darunter befanden sich die nachmaligen Typen von *Cinnyris nigriscapularis salvadorii* Shelley.

Guillemard (1883). Die Yacht *Marchesa* segelte von Waigeu über Manokwari nach Ansus auf Jobi, wo sie im November einige Tage vor Anker lag und Guillemard Gelegenheit fand, einige Vögel zu sammeln. Diese wurden später vom Tring-Museum angekauft.

Doherty (1897). Bevor William Doherty nach Numfor reiste, brachte er im April und Mai 1897 einige Wochen bei Ansus auf Japen zu, wo einer seiner Jäger ermordet wurde.[1] Er vermehrte die Liste der Vögel um einige Arten, von denen *Aepypodius arfakianus* und *Ptilinopus musschenbroekii* besonders bemerkenswert sind. Die Bälge gelangten ans Tring-Museum.

Stein (1931). Als erstes Reiseziel wählte sich Herr Georg Stein nach seiner Ankunft in Manokwari die Insel Japen, wo er sich vom 20. Febr. bis 15. März und später noch einige Tage im Juli aufhielt. Seine vornehmlichstes Sammelgebiet bildete die Umgebung der Dörfer Serui und Kampong Baru, doch ist er auch ins gebirgige Innere der Insel vorgedrungen und wohl der erste Ornithologe gewesen, der die höchsten Erhebungen, etwa 950 m., erreichte. Die Zahl der

[1] A. Wichmann, *Nova Guinea*, ii, 2, 1912, p. 628.

von ihm für Japen neuentdeckten ansässigen Arten ist daher ansehnlich. Es sind die folgenden 23 :

Corvus coronoides orru Bp.
Myzomela cruentata cruentata A. B. Meyer.
Melilestes megarhynchus stresemanni Hart.
Glycichaera fallax fallax Salvad.
Meliphaga montana steini Stres. & Pal.
Xanthotis virescens sonoroides (Gray).
Pitohui dichrous dichrous (Bp.).
Rhipidura threnothorax nigrivertex Stres. & Pal.
Rhipidura hyperythra mülleri A. B. Meyer.
Todopsis wallacei Gray.
Sericornis magnirostris jobiensis Stres. & Pal.
Sericornis spilodera spilodera (Gray).
Collocalia vanikorensis hirundinacea Stres.
Collocalia vanikorensis baru Stres. & Pal.
Caprimulgus macrurus yorki Math.
Ninox dimorpha (Salvad.).
Tyto tenebricosa arfaki (Schleg.).
Eurystomus orientalis crassirostris Sclater.
Cacomantis castaneiventris arfakianus Salvad.
Cacomantis variolosus infaustus Cab. & Heine.
Haliastur indus girrenera (Vieill.).
Henicopernis longicauda fraterculus Stres. & Pal.
Baza subcristata reinwardti (Müll. & Schleg.).
Macropygia nigrirostris nigrirostris Salvad.

BERICHT DER EXPEDITION STEIN

" Als Lokalität vieler in den Sammlungen befindlicher Japenvögel kehrt immer wieder der im Westen der langgestreckten Insel gelegene kleine Ort Ansus, früher der Mittelpunkt der Paradiesvogeljagd. Hier fehlen bedeutendere Erhebungen, dafür ist der Küstenwald, auch Mangrove, in ausgedehntem Maysse vertreten. Wir benutzten als Ausgangspunkt unserer Tätigkeit Seroei, mehr im Osten gelegen, von wo aus das Gebirge ohne Zeitverlust und kostspielige Praufahrten erreichbar war. Dieser Wahl ist wohl das Fehlen einiger Arten in meiner Sammlung, wie *Gerygone magnirostris*, *Goura*, *Probosciger*, *Halcyon nigrocyanea* zuzuschreiben, die in dem wenig ausgedehnten, noch dazu von Sekundärbusch und Eingeborenenpflanzungen durchsetzten Niederungswald der Umgebung Seroeis keine ausreichenden Existenzbedingungen vorfanden. *Paradisea minor*, *Cicinnurus*, *Cacomantis castaneiventris* und *variolosus* waren hier häufig. Nach zehn Tagen Sammeltätigkeit zogen wir in das Gebirge, das nach Durchschreiten der schmalen Küstenzone steil anstieg. In etwa 350 m Höhe schlugen wir unser erstes Lager auf. Ausserordentlich steile, ganz mit Urwald bestandene, dazu dick verwachsene Hänge machten das Schiessen und vor allem die Bergung der erlegten Stücke ausserordentlich schwierig, so dass ich, natürlich auch um die Fauna der höchsten Erhebungen zu sammeln, mein Lager auf 950 m verlegte, während meine Frau mit Jägern und einem Präparator auf dem alten Standplatz verblieb. Grössere Höhen waren nicht vorhanden, der Urwald hatte hier wesentlich von

seiner Mächtigkeit verloren; die Bäume waren niedriger, alles erschien lichter. *Diphyllodes magnifica*, *Myzomela nigrita*, *Microeca flavovirescens*, *Gerygone palpebrosa*, *Sericornis spilodera* waren hier die bemerkenswertesten Vertreter; auch das einzige Exemplar von *Meliphaga montana*, von der es uns trotz aller Mühe nicht gelang, weitere Stücke zu erbeuten, stammt von hier. Am 19. III. kehrten wir nach Seroei zurück, von wo aus ich noch eine kurze Praufahrt die Steilküste von Japen entlang nach dem in Luftlinie schätzungsweise 30 km östlich gelegenen Kampong Baroe unternahm. Meine Absicht, von diesem Ort aus noch einmal in das Gebirge einzudringen, musste einer Fussverletzung wegen unterbleiben. Die Artenliste von Japen konnte hier noch um *Tyto tenebricosa* vermehrt werden. Bei meinem 2. kurzen Aufenthalt auf Japen (bei der Fahrt ins Weyland-gebirge) wurden noch beobachtet aber nicht geschossen *Oriolus szalayi* und *Pitta sordida novaeguineae*.

Das Fehlen von Vertretern der Hochgebirgsfauna auf den Gebirgsmassiven Japens dürfte als feststehende Tatsache zu betrachten sein. An sich ist für ein tropisches Gebirge die Höhenlage von 1000 m schon in klimatischer Beziehung nicht ausreichend, um typischen Hochgebirgsvögeln die geeigneten Lebensbedingungen zu bieten. Hinzu kommt noch, dass auch vor der Loslösung Japens vom Rumpfe Neuguineas die zentralen Gebirgsketten weit entfernt und durch für Hochgebirgstiere unüberschreitbare Tieflandsgebiete getrennt gewesen sein müssen."

VERZEICHNIS DER BRUTVÖGEL.

Corvidae.

1. Corvus coronoides orru Bp.
2. Gymnocorvus tristis (Less. & Garn.).

Paradisaeidae.

3. Manucodia jobiensis jobiensis Salvad.
4. Paradisaea minor jobiensis Rothsch.
5. Diphyllodes magnificus chrysopterus Ell.
6. Cicinnurus regius coccineifrons Rothsch.
7. Ailuroedus buccoides geislerorum A. B. Meyer.

Sturnidae.

8. Mino dumontii violaceus Berlepsch.
9. Aplonis metallicus metallicus (Temm.).

Dicruridae.

10. Dicrurus bracteatus carbonarius Bp.

Meliphagidae.

11. Myzomela cruentata cruentata A. B. Meyer.
12. Myzomela nigrita nigrita Gray.
13. Toxorhamphus iliolophus iliolophus (Salvad.).
14. Toxorhamphus novaeguineae novaeguineae (Less.).
15. Melilestes megarhynchus stresemanni Hart.

16. Glycichaera fallax sylvia Reichenow.
17. Meliphaga analoga flavida Stres. & Pal.
18. Meliphaga notata sharpei (Rothsch. & Hart.).
19. Meliphaga montana steini Stres. & Pal.
20. Xanthotis virescens sonoroides (Gray).
21. Xanthotis chrysotis meyeri Salvad.
22. Philemon novaeguineae jobiensis (A. B. Meyer).

Nectariniidae.

23. Cinnyris jugularis frenata (S. Müll.).
24. Cinnyris sericea sericea Less.
25. Cinnyris nigriscapularis salvadorii Shell.

Dicaeidae.

26. Dicaeum geelvinkianum geelvinkianum A. B. Meyer.
27. Melanocharis nigra unicolor Salvad.

Zosteropidae.

28. Zosterops minor minor A. B. Meyer.

Laniidae.

29. Cracticus cassicus (Bodd.).
30. Cracticus quoyi quoyi (Less.).
31. Pitohui kirhocephalus jobiensis (A. B. Meyer).
32. Pitohui ferrugineus holerythrus (Salvad.).
33. Pitohui dichrous dichrous (Bp.).
34. Myiolestes megarhynchus obscurus (A. B. Meyer).
35. Pachycephala griseiceps jobiensis A. B. Meyer.

Muscicapidae.

36. Monarcha guttula (Garn.).
37. Monarcha alecto chalybeocephala (Garn.).
38. Monarcha cinerascens geelvinkiana A. B. Meyer.
39. Arses telescophthalmus insularis (A. B. Meyer).
40. Rhipidura leucophrys melaleuca (Quoy & Gaim.).
41. Rhipidura threnothorax nigrivertex Stres. & Pal.
42. Rhipidura fumosa Schleg.
43. Rhipidura rufiventris gularis S. Müll.
44. Rhipidura hyperythra mülleri A. B. Meyer.
45. Rhipidura rufidorsa A. B. Meyer.
46. Poecilodryas brachyura albotaeniata (A. B. Meyer).
47. Microeca flavovirescens Gray.
48. Gerygone chrysogaster chrysogaster Gray.
49. Gerygone magnirostris affinis A. B. Meyer.
50. Todopsis wallacei Gray.
51. Gerygone palpebrosa wahnesi A. B. Meyer.

Timeliidae.

52. Crateroscelis murinus murinus Sclater.
53. Sericornis magnirostris jobiensis Stres. & Pal.
54. Sericornis spilodera spilodera (Gray).

Campophagidae.

55. Coracina caeruleogrisea (Gray).
56. Coracina boyeri boyeri (Gray).
57. Coracina papuensis papuensis (Gm.).
58. Edolisoma melan melan (Less.).
59. Edolisoma ceramense incertum (A. B. Meyer).

Hirundinidae.

60. Hirundo tahitica frontalis (Quoy & Gaim.).

Pittidae.

61. Pitta mackloti mackloti Temm.

Macrochires.

62. Hemiprocne mystacea mystacea (Less.).
63. Collocalia esculenta subsp.
64*a*. Collocalia vanikorensis hirundinacea Stres.
64*b*. Collocalia vanikorensis baru Stres. & Pal.

Caprimulgi.

65. Caprimulgus macrurus yorki Math.

Podargi.

66. Podargus papuensis papuensis Quoy & Gaim.
67. Podargus ocellatus ocellatus Quoy & Gaim.

Striges.

68. Ninox dimorpha (Salvad.).
69. Tyto tenebricosa arfaki (Sehleg.).

Bucerotes.

70. Rhyticeros plicatus ruficollis Vieill.

Coraciae.

71. Eurystomus orientalis crassirostris Selater.

Halcyones.

72. Alcyone azurea ochrogaster Rchw.
73. Ceyx lepidus solitarius Temm.
74. Halcyon nigrocyanea quadricolor Oust.
75. Halcyon saurophaga saurophaga Gould.
76. Syma torotoro torotoro Less.
77. Sauromarptis gaudichaud (Quoy & Gaim.).
78. Melidora macrorhina jobiensis Salvad.

Cuculi.

79. Cacomantis castaneiventris arfakianus Salvad.
80. Cacomantis variolosus infaustus Cab. & Heine.
81. Centropus menbeki jobiensis Stres. & Pal.

Psittaci.

82. Cacatua galerita triton (Temm.).
83. Probosciger aterrimus stenolophus (v. Oort).
84. Geoffroyus geoffroyi jobiensis Salvad.
85. Eclectus roratus pectoralis (Müll.).
86. Lorius lory jobiensis (A. B. Meyer).
87. Eos fuscata incondita A. B. Meyer.
88. Trichoglossus haematodus haematodus (Linn.).

Accipitres.

89. Spizaetus gurneyi (Gray).
90. Haliastur indus girrenera (Vieill.).
91. Henicopernis longicauda fraterculus Stres. & Pal.
92. Baza subcristata reinwardtii (Müll. & Schleg.).
93. Accipiter novaehollandiae leucosomus (Sharpe).
94. Accipiter meyerianus (Sharpe).
95. Accipiter poliocephalus Gray.
96. Accipiter cirrhocephalus papuanus Rothsch. & Hart.
97. Falco peregrinus ernesti Sharpe.
98. Falco severus papuanus Mey. & Wigl.

Gressores.

99. Egretta garzetta nigripes ((Temm.).
100. Butorides striatus moluccarum Hart.

Columbae.

101. Ptilinopus superbus superbus (Temm.).
102. Ptilinopus coronulatus geminus Salvad.
103. Ptilinopus iozonus jobiensis Schleg.
104. Ptilinopus aurantiifrons Gray.
105. Ptilinopus perlatus perlatus (Temm.).
106. Ptilinopus miqueli Schleg.
107. Ptilinopus musschenbroekii Schleg.
108. Ptilinopus pectoralis salvadorii Rothsch.
109. Megaloprepia magnifica septentrionalis A. B. Meyer.
110. Ducula zoeae (Desmar.).
111. Ducula rufigaster uropygialis Stres. & Pal.
112. Ducula pinon jobiensis (Schleg.).
113. Myristicivora spilorrhoa spilorrhoa (Gray).
114. Gymnophaps albertisi albertisi Salvad.
115. Reinwardtoena reinwardti griseotincta Hart.
116. Macropygia amboinensis kerstingi Rchw.

117. Macropygia nigrirostris nigrirostris Salvad.
118. Gallicolumba rufigula rufigula (Jacq. & Puch.).
119. Gallicolumba jobiensis A. B. Meyer.
120. Chalcophaps stephani stephani Rchb.
121. Henicophaps albifrons Gray.
122. Caloenas nicobarica nicobarica (L.).
123. Goura victoria victoria (Fraser).

Anseres.

124. Tadorna radjah radjah (Garn.).

Limicolae.

125. Esacus magnirostris (Vieill.).

Lari.

126. Sterna bergii cristata Steph.

Galli.

127. Megapodius affinis affinis A. B. Meyer.
128. Talegallus jobiensis jobiensis A. B. Meyer.
129. Aepypodius arfakianus Salvad. (?)

Casuarii.

130. Casuarius unappendiculatus occipitalis Salvad.

VERZEICHNIS DER ZUGVÖGEL.

1. Muscicapa griseosticta Swinh.
2. Motacilla cinerea caspica (Gm.).
3. Merops ornatus Lath.
4. Eurystomus orientalis pacificus (Lath.).
5. Halcyon sancta sancta Vig. & Horsf.
6. Cuculus optatus Gould.
7. Charadrius dominicus fulvus Gm.
8. Charadrius dubius curonicus Gm.
9. Actitis hypoleucos (L.).
10. Numenius phaeopus variegatus (Scop.).

ZUR BESIEDLUNGSGESCHICHTE.

Wie schon einleitend bemerkt wurde, ist Japen eine sehr junge Insel und gehört seiner Avifauna nach zur Nordküste von Neuguinea. Die Übereinstimmung etwa mit dem weiten Flachland westlich der Mamberano-Mündung ist indessen keine vollkommene. Es fehlen auf Japen viele dort vorkommende Arten, wie z. B. die folgenden:

Bis zum Unterlauf des Mamberano verbreitet, aber auf Japen fehlend.

Macrocorax fuscicapillus.
Manucodia ater.
Seleucides melanoleucus.
Drepanornis bruijni.
Melanopyrrhus anais.
Lonchura grandis.
Lonchura tristissima.
Glyciphila modesta.
Pycnopygius ixoides.
Pycnopygius stictocephalus.
Philemon meyeri.
Monarcha chrysomela.
Monarcha menadensis.
Monarcha rubiensis.
Rhipidura leucothorax.
Poecilodryas hypoleucus.
Todopsis cyanocephalus.
Chenorhamphus grayi.
Peltops blainvillii.
Malurus alboscapulatus.
Pomatorhinus isidori.
Lalage atrovirens.
Tanysiptera hydrocharis.
Rhamphomantis megarhynchus.
Eudynamis scolopacea.
Centropus hernsteini.
Micropsitta pusio.
Alisterus amboinensis.
Chalcopsitta duyvenbodei.
Hieracidea berigora.
Megatriorchis doriae.
Zonerodius heliosylus.
Ducula mülleri.
Trugon terrestris.
Otidiphaps nobilis.

Dafür besitzt Japen, dessen waldbedecktes Hügelland bis etwa 1000 m. aufragt, einige Mittelgebirgsvögel, die dem gegenüberliegenden Flachland Neuguineas fehlen und erst im küstenfernen Gebirge wiederkehren, wie zum Beispiel :

Meliphaga montana.
Zosterops minor.
Pitohui dichrous.
Rhipidura hyperythra.
Sericornis magnirostris.
Cacomantis castaneiventris.
Reinwardtoena reinwardti.
Aepypodius arfakianus (?).

Ein dritter Unterschied zwischen Neuguinea und Japen wird dadurch hervorgerufen, dass Japen einige Arten von den alten Inseln der Geelvinkbai empfing. Das sind zumeist solche Arten, die aus noch unbekannten oekologischen Ursachen ausschliesslich kleinere Inseln, nicht aber den Rand grosser Festlandsmassen besiedeln :

Cinnyris nigriscapularis.
Monarcha cinerascens.
Halcyon saurophaga.
Accipiter meyerianus.
Ptilinopus miqueli.
Ptilinopus musschenbroekii.
Megapodius freycinet.

RASSENBILDUNG AUF JAPEN.

Wohl einer der interessantesten Vögel von Japen ist, vom zoogeographischen Standpunkte aus betrachtet, *Cinnyris nigriscapularis*. Diese Art ist auf Japen und Miosnom beschränkt und steht dem *Cinnyris sericeus* sehr nahe, lebt aber auf Japen neben dem letzteren. Eine zweite Art, die nur auf Japen und Miosnom vorkommt, ist *Ptilinopus miqueli*, abzuleiten von der Gruppe *Ptilinopus rivolii*. Von diesen beiden Fällen abgesehen, besitzt Japen (mit seinem Trabanten Miosnom) keine endemischen Arten, wenn man nicht als eine solche noch *Rhipidura fumosa* Schleg. betrachten will, deren Typus sich aber wahrscheinlich als der junge Vogel einer altbekannten Art erweisen wird. Selbst die Bildung endemischer Rassen ist über die Anfänge meist nicht hinausgekommen und bei sehr vielen Arten noch nicht einmal angedeutet. Wir lassen eine Liste endemischer Rassen folgen, die sich alle eng an Rassen der Mamberano-Mündung anschliessen. Am deutlichsten gekennzeichnet sind wohl *Pitohui kirhocephalus jobiensis*, *Paradisaea minor jobiensis* und *Sericornis magnirostris jobiensis*.

Paradisaea minor jobiensis.
Cicinnurus regius coccineifrons.
Meliphaga montana steini.
Xanthotis chrysotis meyeri.
Dicaeum geelvinkianum geelvinkianum.
Pitohui kirhocephalus jobiensis.
Myiolestes megarhynchus obscurus.
Rhipidura threnothorax nigrivertex.
Poecilodryas brachyura albotaeniata.
Sericornis magnirostris jobiensis.
Collocalia vanikorensis baru.
Centropus menbeki jobiensis.
Henicopernis longicauda fraterculus.

SYSTEMATISCHER TEIL.

Corvus coronoides orru Bonap.

Gesammelt von : Stein.

314.	25.	II.	Serui.	♂2.	Fl. 322 ;	Schw. 167 ;	Gew. 610 ;	ad.
654.	25.	III.	K. Baroe.	♀0.	„ 304 :	„ 167 ;	„ 500 ;	Ju. Kl.

Gymnocorvus tristis (Less. & Garnot).

Gesammelt von : A. B. Meyer, Beccari, Bruijn, Guillemard, Doherty, Stein.

253.	Serui.	23. II.	♂1.	Fl. 325 ;	Schw. 236 ;	Gew. 600 ;	hell	
274.	„	24. II.	♂0.	„ 325 :	„ 235 :	„ 725	„	
304.	„	25. II.	♂0.	„ 304 ;	„ 225 :	„ 600	„	
254.	„	23. II.	♂0.	„ 318 ;	„ 224 ;	„	„	
273.	„	24. II.	♀0.	„ 319 ;	„ 232 ;	„ —	„	juv.
279.	„	24. II.	♀0.	„ 315 ;	„ 240 ;	„ 800 ;	dunkel, Flügelmauser.	

Die auffälligen Färbungsunterschiede, welche diese Art zeigt, sind bisher meist, so auch von Salvadori und Rothschild & Hartert, als Unterschied zwischen jüngeren und älteren Vögeln gedeutet worden, obwohl schon Wallace (*Ibis*, 1863, p. 101) sie als Ausdruck der individuellen Variation bezeichnet hatte. Eine Untersuchung von 18 Exemplaren des Berliner Museums hat uns gezeigt, dass die Ansicht von Wallace die richtige ist. Das Alterskleid dieser Krähe variiert also zwischen zwei Extremen. Bei einem ist das ganze Körpergefieder schwärzlichbraun, auf der Oberseite sogar stellenweise schwarz mit bläulichem Metallglanz, und auch Flügel und Schwanzfedern sind schwarz mit metallischem Reflex (alle Steuerfedern mit Ausnahme der centralen in der Spitzenhälfte, besonders an der Innenfahne, schmutzig weiss). Der Schnabel dieser Färbungsphase ist schwarz mit hornfarbenen Schneiden und hornfarbenen Flecken am Unterschnabel. Diese Färbung wird vertreten durch Nr. 279. Das andere Extrem ist hell mit schmutzigweissem Kopf, blass graulichbraunen, schmutzigweiss gesäumten Rückenfedern, weisser Kehle, weissem Bauch und blass rauchbraun getrübter Brust- und Bauchregion. Diese Phase hat düster braune Schwung- und Steuerfedern ohne deutlichen Metallreflex. Sie hat einen gelben Schnabel ohne Melanin. Diese beiden Extreme werden nicht durch eine Serie von Übergängen verknüpft, sondern der Gegensatz wird nur dadurch gemildert, dass manche Vertreter der hellen Phase eine leichte Annäherung an den dunklen Typus insofern zeigen, als ihr Oberkopf und ihre Kehle eine rauchbraune Farbe annehmen, die Tönung der Brust etwas dunkler sein und der Schnabel einzelne schwarze Flecke aufweisen kann. Die beiden einzigen uns im Jugendkleid vorliegenden Vögel zeigen den hellen Färbungstyp (Mus. Berlin Nr. 273 und Langemak-Bucht I. 1901). Es ist also möglich, dass auch die im Alterskleid dunklen Individuen ein helles Jugendkleid durchlaufen, aber wir halten es auch für möglich, dass uns das dunkle Jugendkleid nur noch nicht bekannt geworden ist; denn die dunkle Phase scheint viel seltener zu sein als die helle. Sie ist unter unserem Material nur vier mal vertreten.—Bei alten Vögeln ist die Iris blau, bei jungen weisslich blau.—Wir können uns dem Vorgehen von Meinertzhagen (Nov. Zool. xxxiii, 1926, p. 68) welcher die Gattung *Gymnocorvus* in die Synonymie von *Corvus* gestellt hat, nicht anschliessen und erblicken in dem sehr langen Schwanz, der nackten Augenumgebung und der Ernährungsweise dieser Krähe (sie ist wie *Macrocorax* ein Fruchtfresser) gute Gattungsmerkmale.

Manucodia jobiensis jobiensis Salvad.

Manucodia jobiensis Salvadori, *Ann. Mus. Civ. Gen.* Bd. 7, p. 969 (1875 —Jobi).

Gesammelt von: A. B. Meyer, Beccari, Bruijn, Guillemard, Doherty, Stein.

475.	600 m.	10. III.	♂3.	Fl. 180;	Gew.	—
594.	400 m.	17. III.	♂3.	„ 178;	„	233
251.	Serui.	25. II.	♂.	„ 182;	„	257
294.	„	24. II.	♀0.	„ 171;	„	205
323.	„	26. II.	♀?.	„ 166;	„	187; juv.

Von dieser guten Art hat Herr Stein eine kleine Serie geschickt. Obgleich die Unterschiede zwischen den Vögeln von der Insel Japen und denen vom Festlande Neu Guineas ziemlich klein sind, glaube ich doch, dass die Subspecies *M. jobiensis rubiensis* A. B. Meyer aufrecht erhalten werden muss.

Mageninhalt: Beeren (294).

Paradisaea minor jobiensis Rothsch.

Paradisea minor jobiensis Rothschild, *Bull. B.O.C.* Bd. vi, p. 46 (1897—Jobi).

Gesammelt von : Beccari, Bruijn, Guillemard, Doherty, Stein.

185.	Serui.	17. II.	♂2.	Fl. 203 ;	Gew. 300 ;	ad.
186.	„	17. II.	♂2.	„ 203 ;	„ 293	„
317.	„	26. II.	♂2.	„ 205 ;	„ 300	„
246.	„	22. II.	♂1.	„ 192 ;	„ —	
437.	450 m.	7. III.	♀1.	„ 180 ;	„ 210	
287.	Serui.	24. II.	♂0.	„ 189 ;	„ 250	
583.	850 m.	15. III.	♂.	„ 206 ;	„ 240	
187.	Serui.	17. II.	♀2.	„ 169 ;	„ 152	
535.	850 m.	12. III.	♀1.	„ 171 ;	„ 189	
544.	850 m.	12. III.	♀1.	„ 166 ;	„ 185	
2989.	Japen.	12. VII.	♀0.	„ 161 ;	„ —	

Die viel längeren Schmuckfedern sowie die ansehnlichere Grösse fallen sofort ins Auge, sowie die Reinheit der Farbe und Fülle dieser weiss und gelb gemischten Schmuckfedern. Die schöne Serie von 10 Exemplaren enthält leider nur drei alte ♂♂ im vollen Prachtkleide, aber die jungen ♂♂ zeigen interessante Entwicklungsstadien der Endfahne der mittleren Steuerfedern ; bei dem ♂ Nr. 583 ist nur eine mittlere Feder vorhanden, aber diese Feder hat die letzten 115 mm. wie eine normale Feder gestaltet, während bei Nr. 246 die Feder aus dem Schaft allein besteht wie bei dem ♂ im Prachtkleid. Auch zeigen diese 2 ♂♂ schon das grüne Halsschild, und die weisse Unterseite ist stärker gelb angeflogen als bei den ♀♀. Drei der jüngsten ♂♂ gleichen ganz den ♀♀ im Gefieder.

Mageninhalt : Früchte, einige kleine Insekten (186), rote Früchte (583).

Diphyllodes magnificus chrysopterus Ell.

Diphyllodes speciosus var. *chrysopterus* Elliot (ex Gould MS.), *Mon. Paradis.*, text to pl. 13 (1873—Pat. ign.)

Diphyllodes jobiensis A. B. Meyer, *Zeitschr. ges. Orn.* ii, p. 388 (1885—Jobi).

Gesammelt von : v. Rosenberg, A. B. Meyer, Beccari, Guillemard, Doherty, Stein.

402.	450 m.	3. III.	♂2.	Fl. 115 ;	Gew. 107	
369.	450 „	4. III.	♂2.	„ 113 ;	„ 95,2	
570.	850 „	14. III.	♂2.	„ 115 ;	„ —	
448 ?	450 „	6. III.	♂2.	„ 115 ;	„ 100,7	
545.	850 „	12. III.	♂2.	„ 116 ;	„ 97	
481.	450 „	9. III.	♂2.	„ 111 ;	„ 96,5	
373.	450 „	4. III.	♂2.	„ 112 ;	„ 106,5 ;	Füsse hell preussisch rotblau.
410.	450 „	5. III.	♂2.	„ 115 ;	„ 100,2	„ bleiblau.
509.	850 „	12. III.	♂.	„ 117 ;	„ 95	
457.	450 „	7. III.	♂2.	„ 117 ;	„ 92,2 ;	juv.
352.	450 „	3. III.	♂2.	„ 116 ;	„ 98	„
376.	450 „	4. III.	♂2.	„ 119 ;	„ 98,5	„
586.	800 „	15. III.	♂.	„ 115 ;	„ —	„
499.	Japen.	12. III.	♀0.	„ 117 ;	„ 85	

Die schöne Serie von 9 ♂♂ im Prachtkleide, 4 ♂♂ im weiblichen Gefieder und 1 ♀ ad. bestätigt völlig die Kennzeichen der Subspecies. Dass 3 der ♂♂ im weiblichen Gefieder schon stark vergrösserte Hoden zeigen, bezeugt, dass dieser Paradiesvogel schon im Jugendkleid brütet ; dass hier auch nur ein ♀

vorliegt, weist darauf hin, dass *Diphyllodes* wie *Cicinnurus* Höhlenbrüter sind, und diese Tatsache zusammen mit der grossen Ähnlichkeit der ♀♀ dieser zwei Gattungen würde es erklären, dass verhältnismässig so viele Stücke des Bastards *Diphyllodes guillelmi-tertii* bekannt sind.

Mageninhalt: Früchte von Kirschengrösse (402), Kerne von Früchten (373), Fruchtschalen (410), Beeren (509), 1 Kern und 1 Frucht von Kirschengrösse (352).

Cicinnurus regius coccineifrons Rothschild.

Cicinnurus regius coccineifrons Rothschild, *Nov. Zool.* Bd. 3, p. 10 (1896—Jobi).

Gesammelt von: v. Rosenberg, Beccari, Bruijn, Guillemard, Doherty, Stein.

2644.	Japen.	13. VII.	♂3.	Fl. 101;	Gew.	—	
627.	K. Baroe.	22. III.	♂2.	„ 101;	„	54	
612.	„	21. III.	♂2.	„ 100;	„	54,8	
614.	„	21. III.	♂2.	„ 102;	„	53,2	
640.	„	23. III.	♂2.	„ 100;	„	50,5	
605.	Serui.	20. III.	♂2.	„ 102;	„	58	
230.	„	20. II.	♂2.	„ 102;	„	50,5	
464.	450 m.	8. III.	♂.	„ 103;	„	54	
2645.	Japen.	12. VII.	♂1.	„ 102;	„	—	Iris hell rotbraun.
326.	Serui.	26. II.	♂.	„ 101;	„	59	Füsse leuchtend blau.
630.	K. Baroe.	24. III.	♂1.	„ 104;	„	55;	Jahreskleid.

Diese Subspecies kennzeichnet sich durch die starke ausgedehnte Schnabelbefiederung und auch dadurch, dass Kopf und übrige Oberseite gleichgefärbt sind. Da nur ein ♀ sich in der Serie von 11 Exemplaren befindet, so müssen die ♀♀ schon mit dem Brutgeschäft befasst gewesen sein, und da *C. regius* ein Höhlenbrüter ist, so sieht man sie kaum während dieser Zeit. Dies ist wahrscheinlich die einzige Serie, die von einem Europäer gesammelt wurde mit Ausnahme des Typus, der von Dr. Guillemard geschossen wurde.

Mageninhalt: 1 kirschengrosse Frucht mit Kernen (230).

Ailuroedus buccoides geislerorum A. B. Meyer.

Gesammelt von: Guillemard.

Mino dumontii violaceus Berlepsch.

Mino dumontii violaceus Berlepsch, *Abh. Senckenb. Nat. Gesellsch.* vol. xxxiv, p. 62 (1911—Konstantinhafen).

Gesammelt von: Beccari, Bruijn, Doherty, Stein.

567.	450 m.	10. III.	♂2.	Fl. 157
213.	Serui.	19. II.	♂0.	„ 151

Die Vögel von Japen stimmen ganz mit Vögeln von Nord-Neuguinea (Taua, Sepik, Stefansort, Sattelberg) sowohl in Grösse wie in Färbung überein. 3 Stück von Manokwari (Stein leg.), also echte *M. d. dumontii*, haben dagegen grünlichen statt bläulichen Schimmer, und der Bauch ist etwas heller gelb, ferner sind Flügel und Schwanz kürzer: *dumontii* ♂ 141–149 (*violaceus* ♂ 150–162) bezw. *dumontii* 65–68–69 (*violaceus* 66–68–69–70–71–72–73–74–75–76–77). Flügelspiegel wie bei *violaceus*. 4 Stück von Aru, *M. d. aruensis* Stres. (im Frankfurter Mus.) gleichen in Färbung und Grösse den Manokwarivögeln, haben aber einen viel kleineren Flügelspiegel (grösste Ausdehnung des Weiss an der Aussenfahne der—von aussen gerechnet—6. Handschwinge: 14–18 gegen 24–30 mm).

Aplonis metallicus metallicus (Temm.).

Gesammelt von : A. B. Meyer, Doherty, Stein.

263.	Sernı.	24. II.	♂2.	Fl. 104 ;	Schw. 94 ;	Gew. 64,7 ;	ad.	Grosse Flügeldecken in Mauser.
266.	„	24. II.	♂2.	„ 113 ;	„ 100 ;	„ 62,7 ;	„	
264.	„	24. II.	♂2.	„ 111 ;	„ 91 ;	„ 67	„	
262.	„	24. II.	♂1.	„ 109 ;	„ 101,5 ;	„ 63,7	„	
240.	„	22. II.	♀1.	„ 106 ;	„ 95,5 ;	„ 61	„	
307.	„	26. II.	♀0.	„ 106 ;	„ 94,5 ;	„ 61,7	„	
265.	„	24. II.	♀0.	„ 101 ;	„ 80 ;	„ 58 ;	Mauser aus I. Ja. Kl.	

Dicrurus bracteatus carbonarius Bonap.

Gesammelt von : Beccari, Bruijn, Doherty, Stein.

183.	Sernı.	7. II.	♂0.	Fl. 148,5 ;	Gew. —		
208.	„	19. II.	♂0.	„ 141 ;	„ 78 ;	Jugendkleid.	
288.	„	24. II.	" ♂ ? "	„ 146,5 ;	„ 75	„	
258.	„	23. II.	♀1.	„ 152,5 ;	„ 84		
290.	„	24. II.	♀0.	„ 147 ;	„ 79 ;	Grossgefiedermauser.	

Einige Stücke haben weisse Endflecken an den Axillaren. Ob dies die Jungen im 2. Jugendkleid sind oder ob es individuelle Variation ist, lässt sich nicht mit Sicherheit sagen.

Myzomela cruentata cruentata A. B. Meyer.

Gesammelt von : Stein.

575.	850 m.	14. III.	♂2.	Fl. 56,5 ;	Gew. — ;	ad.	
587.	850 „	15. III.	♂2.	„ 55 ;	„ —	„	
460.	450 „	8. III.	♂1.	„ 54 ;	„ 7,5 ;	I. Ja. K.	
581.	850 „	12. III.	♂0.	„ 55 ;	„ 8	„ „	
473.	450 „	9. III.	♂0.	„ 52 ;	„ 6,4 ;	Ju. K.	
474.	450 „	9. III.	♀2.	„ 50,5 ;	„ 7		
434.	450 „	7. III.	♀0.	„ 49,5 ;	„ 6,7		
449.	450 „	7. III.	?.	„ 50 ;	„ 6,7		

Bisher nur vom Festland Neuguineas bekannt. Das Rot der beiden alten ♂♂ ist etwas weniger leuchtend als das der festländischen.

Myzomela nigrita nigrita Gray.

Myzomela pluto Forbes, *Proc. Zool. Soc. Lond.* 1879, p. 266 (1879—Jobi, Miosnom).

Gesammelt von : Beccari, Bruijn, Doherty, Stein.

459.	450 m.	8. III.	♂2.	Fl. 63 ;	Schw. 43 ;	Schn. 18 ;	Gew. 12 ;	ad.	
484.	450 „	9. III.	♂2.	„ 63 ;	„ 45,5 ;	„ 16 ;	„ 10,8	„	
477.	600 „	9. III.	♂1.	„ 60 ;	„ 40,5 ;	„ 16 ;	„ 9,8 ;	juv.	
574.	850 „	14. III.	♂1.	„ 59 ;	„ 41,5 ;	„ 17 ;	„ —	„	
469.	450 „	9. III.	♂0.	„ 57,5 ;	„ 40 ;	„ 16 ;	„ 10,4 ;	„ ;	Grossgefiedermauser.
390.	800 „	5. III.	♂0.	„ 56 ;	„ 38,5 ;	„ 15,5 ;	„ 9,2	„	
415.	450 „	6. III.	♀0.	„ 52 ;	„ -	„ 16 ;	„ 9,2	„	
592.	850 „	15. III.	♀0.	„ 51 ;	„ 34 ;	„ 14,5 ;	„ 8,1		

Da die Flügellängen der Vögel von Jobi, Rubi, Manokwari, Sattelberg und Aruinseln alle innerhalb der Variationsgrenzen der Sepikvögel liegen, muss man wohl alle diese Populationen *M. n. nigrita* nennen und *M. n. meyeri* Salvad. (Sepik, Manokwari) sowie *M. n. pluto* Forbes (Jobi, Miosnom) als Synonyme betrachten.

Mageninhalt : kleine Insekten (390).

Toxorhamphus iliolophus iliolophus (Salvad.).

Melilestes iliolophus Salvadori, *Ann. Mus. Civ. Gen.* vol. vii, p. 951 (1876—Miosnom).

Gesammelt von : Beccari, Doherty, Stein.

532.	850 m.	12. III.	♂1.	Fl. 68 ;	Gew. 12		
525.	850 ,,	12. VI.	♂0.	,, 65,5 ;	,, 13,5		
506.	850 ,,	12. III.	" ♂."	,, 58 ;	,, —	(♀ !).	
528.	850 ,,	12. III.	♀0.	,, 59,5 :	,, 11		

Die kleine Serie, die nahezu von der terra typica stammt, stimmt ganz mit drei Stücken von Junzaing und drei Stücken vom Sattelberg überein.

Toxorhamphus novaeguineae novaeguineae (Lesson).

Gesammelt von : Doherty, Stein.

526.	850 m.	12. III.	♂2.	Fl. 68 ;	Schn. 26 ;	Gew. 13
626.	K. Baroe.	22. III.	♂1.	,, 69 ;	,, 28 ;	,, 13
534.	850 m.	12. III.	♂0.	,, 69 ;	,, 26 ;	,, 13,5
452.	450 ,,	7. III.	♀2.	,, 61 ;	,, 23 ;	,, 9,5
494.	450 ,,	11. III.	♀0.	,, 60 ;	,, 23 ;	,, 10,2
580.	850 ,,	14. III.	?.	,, 63 ;	,, 23,5	,, —

Die Serie zeigt keine Abweichungen gegenüber Vögeln von Manokwari, Waigeu, Taua am Mamberano und vom Sepik.

Melilestes megarhynchus stresemanni Hart.

Melilestes megarhynchus stresemanni Hartert, *Nov. Zool.* xxxvi, p. 45 (1930—Hollandia).

Gesammelt von : Stein.

593.	400 m.	17. III.	♂2.	Fl. 101 ;	Gew. 45,4	
601.	Serui.	20. III.	♂1.	,, 95 ;	,, —	
591.	500 m.	15. III.	♂1.	,, 97 ;	,, 43,5	
609.	Serui.	21. III.	♂1.	,, 94 ;	,, —	
491.	450 m.	10. III.	♂0.	,, 99 ;	,, —	juv.

Völlig übereinstimmend mit einer Serie vom Sepikgebiet. Man kennt diese Rasse jetzt von Japen und der Nordküste Neuguineas zwischen Mamberano und Astrolabebai. Sie folgt dem Mamberano und Sepik weit aufwärts. Über die Unterschiede zwischen ihr und *M. m. megarhynchus* siehe unter Waigeu ! Junge *stresemanni* weichen von jungen *megarhynchus* noch erheblicher ab als die Alten voneinander : *megarhynchus* juv. : Unterseite mit gelbgrünlichen Federsäumen, Bauch braun, Oberseite olivbraun ; *stresemanni* juv. : Unterseite mit weissgrauen Federsäumen, Bauch braungrau, Oberseite graubraun.

Glycichaera fallax sylvia Reichenow.

Gesammelt von : Stein.

237.	Serui.	22. II.	♂3.	Fl. 59 ;	Gew. —
245.	,,	22. II.	♂3.	,, 58 ;	,, 9,3
248.	,,	22. II.	♂2.	,, 58 ;	,, 10,2
495.	450 m.	11. III.	♂1.	,, 57,5 ;	,, —
470.	450 m.	9. III.	♂0.	,, 55,5 ;	,, 10,2
414.	450 m.	6. III.	♂0.	,, 53 ;	,, 9,5
606.	Serui.	20. III.	♀2.	,, 53,5 ;	,, 5
607.	Serui.	20. III.	♀2.	,, 54 ;	,, —
492.	450 m.	10. III.	♀0.	,, 54 ;	,, —

3 ♂♂ in Grossgefiedermauser.

Nicht zu unterscheiden von einer Serie vom Sepik und dem Typus von " *Sericornis sylvia* " Reichenow, *Journ. f. Orn.* 47, p. 118 (1899—Friedrich Wil-

helmshafen); dagegen sind ein ♂ von Manokwari (Flügel 61 mm.) und ein ♀ vom unteren Menoo (Flügel 62 mm.), beide von Stein gesammelt, grösser und an Brust und Kehle grauer, weniger gelb.

Meliphaga analoga flavida Stres. & Pal.

Meliphaga analoga flavida Stresemann & Paludan, *Novit. Zool.* xxxviii, p. 147 (1932—Japen).

Gesammelt von: Beccari, Bruijn, Doherty, Stein.

♂♂ (24. II.–12. III., 14. VII.)	Fl. 78^2–80–81,5–83–84.
	Gew. 20–22,2–24–26,5–28,7.
♀♀ (17. II.–7. III., 14. VII.)	Fl. 72–74–76^3–77^2.
	Gew. 20–21,9–22,3–24^2–26.

Die Serie aus Japen (Serui und: Höhe von 450–850 m.) stimmt mit einer solchen vom Sepikgebiet überein, unterscheidet sich dagegen von einer Serie aus Manokwari dadurch, dass die Unterseite gelblicher, weniger graulich getönt ist; noch graulicher als diese ist die Population von Waigeu. Die Variante mit weissen Ohrbüscheln (*albonotata*) findet sich weder in der Serie von Japen, noch in der Serie von Waigeu, dürfte also hier völlig fehlen.

Meliphaga notata sharpei (Rothsch. & Hart.).

Gesammelt von: Doherty, Stein.

432.	450 m.	7. III.	$♂_2$.	Fl. 94;	Gew. 29
385.	450 m.	5. III.	$♂_2$.	„ 89;	„ 26
332.	Serui.	26. II.	"♂."	„ 79;	„ 24 (♀!).

Ganz wie eine Serie vom Sepik gefärbt, dagegen unterseits gelblicher als eine Serie von Waigeu.

Meliphaga montana steini subsp. nov.

Typus: $♂_3$ Jobi, 850 m., 12. März 1931, Stein leg. Nr. 508; Fl. 87; Gew. 27

Gesammelt von: Stein.

Hartert hat in NOV. ZOOL. xxxvi, 1930, p. 47, die *montana*-Rasse vom Cyclopen-Gebirge und vom Sepikgebiet als *M. m. germanorum* von der Arfakform *M. m. montana* abgetrennt. Er benutzte zum Vergleich 3 Exemplare der letzteren, von denen uns zwei jetzt vorliegen. Es zeigt sich nun, dass eins davon, nämlich das ♀ aus Manokwari, garnicht zu *montana* gehört, sondern die *albonotata*-Variante von *M. a. analoga* repräsentiert. Das andere Stück, also die echte *M. m. montana*, weicht von *germanorum* nur ausserordentlich wenig ab, vielleicht nur durch etwas weniger gelbolive, mehr grünolive Tönung der Ränder der Unterseitenfedern. Weit verschiedener von beiden ist die von Herrn Stein auf Jobi entdeckte Rasse. Sie unterscheidet sich von ihnen durch viel blassere, weniger gelbe Säumung der Unterseitenfedern und durch mehr grünlich olive, weniger gelblich olive Tönung der Oberseite.

Die beiden Arten *M. montana* und *M. analoga* sind daran leicht zu unterscheiden, dass die Innensäume der Schwungfedern bei *M. montana* fahl isabellbräunlich, bei *M. analoga* fahl isabellgelblich sind.

Xanthotis virescens sonoroides (Gray).

Gesammelt von : Stein.

173.	Serui.	17.	II.	♂₂.	Fl. 108 ;	Gew. 49		
196.	,,	18.	II.	♂₁.	,, 102 ;	,,	43 ;	Grossgefiedermauser.
181.	,,	17.	II.	♀₀.	,, 107 ;	,,	39	
179.	,,	17.	II.	♀₀.	,, 103 ;	,,	39	
174.	,,	17.	II.	♀₀.	,, 105 ;	,,	36	
195.	,,	18.	II.	♀₀.	,, 109 ;	,,	37,5	
1935.	,,	10.	VII.	♂₀.	,, —		— ;	Nestling.

Übereinstimmend mit 5 Exemplaren von Waigeu.

Xanthotis chrysotis meyeri Salvad.

Xanthotis meyeri Salvadori, *Ann. Mus. Civ. Gen.* vol. vii, p. 947 (1876—Jobi).

Gesammelt von : A. B. Meyer, Beccari, Bruijn, Doherty, Stein.

♂♂ (17. II.–21. III., 14. VII.) Fl. 101–103–104²–105³–106²–107²–108–109,5.
Gew. 43–46–48–49–51³–51,5–52,2–54.
♀♀ (23. II.–17. III.) Fl. 94–95–95,5²–96–97.
Gew. 37–39–40,5–33–44–49.

3 ♂♂ und 1 ♀ waren in Flügelmauser.

Fundorte : K. Baroe, Serui und in einer Höhe von 700 und 850 m.

Diese schöne Serie zeigt aufs deutlichste, dass *X. c. meyeri* auf Japen beschränkt ist. Zwischen Mamberano und Astrolabebai lebt die sehr ähnlich gefärbte Rasse *philemon* Stres., welche sich nur dadurch unterscheidet, dass Brust und Bauch bräunlicher, weniger grau sind. Die Farbe der Ohrbüschel ist bei beiden Rassen gleich. Die von Hartert zu *meyeri* gestellte Serie, die Dr. Mayr bei Ifaar im Cyclopen-Gebirge gesammelt hat, konnten wir untersuchen und ihre Zugehörigkeit zu *philemon* feststellen.

Mageninhalt : Insektenflügel (522), zerkleinerte Früchte (456), Samen von Früchten, Fruchtfleisch (300), Beeren und Fruchtfleisch (197), Beeren (523).

Philemon novaeguineae jobiensis (A. B. Meyer).

Tropidorhynchus jobiensis Meyer, *Sitzungsber. K. Akad. Wiss. Wien*, vol. lxx, p. 113 (1874—Jobi).

Gesammelt von : A. B. Meyer, Beccari, Bruijn, Stein.

170.	—	17.	II.	♂.	Fl. 155 ;	Gew. 179		
479.	450 m.	9.	III.	♂.	,, 148 ;	,,	145	
169.	Serui.	17.	II.	♂.	,, 148 ;	,,	140 ;	juv.
269.	,,	24.	II.	♀.	,, 152 ;	,,	—	
216.	,,	19.	II.	♀.	,, 155 ;	,,	155	
2885.	Japen.	14.	VII.	♀	,, 143 ;	,,	—	,,

Die Jungen haben nicht allein olivenfarbige Säume an den Schwingen, sondern auch weisse Endsäume auf den Rückenfedern und einen weissen Nackenring. Dieser Ring ist sehr undeutlich beim ad.

Cinnyris jugularis frenata (S. Müll.).

Gesammelt von : A. B. Meyer, Beccari, Guillemard, Doherty, Stein.

196.	Serui.	18.	II.	♂₂.	Fl. 56 ;	Gew. 8,3 ;	Flügelmauser.
205.	,,	19.	II.	♂₂.	,, 55 ;	,, 9,3	

Mit Vögeln von Manokwari und Waigeu übereinstimmend.

Cinnyris sericea sericea Lesson.

Chalcostetha aspasia var. *jobiensis* A. B. Meyer, *Sitzungsber. K. Akad. Wiss. Wien*, lxx, p. 124 (1874—Jobi).

Gesammelt von : A. B. Meyer, Guillemard, Doherty, Stein.

180.	Serui.	17. II.	♂2.	Fl. 61 ;	Gew. 9	
202.	,,	19. II.	♂2.	,, 58 ;	,, 8	
316.	,,	26. II.	♂2.	,, 58 ;	,, 8,2 ;	I. Ja. Kl.
461.	250 m.	8. III.	♀0.	,, 54 ;	,, —	

Wir finden keinerlei Unterschied zwischen Exemplaren von Japen einerseits und solchen von Manokwari, Mamberano und Sepikgebiet andererseits. Die von A. B. Meyer für *C. a.* var. *jobiensis* angegebenen Unterschiede vermögen wir also nicht zu bestätigen, ebensowenig wie schon vor uns Rothschild & Hartert.

Cinnyris nigriscapularis salvadorii Shelley.

Cinnyris salvadorii Shelley, *Monogr. Sunbirds*, p. 105, pl. 35 (1877—Jobi).

Gesammelt von : Bruijn.

Cinnyris nigriscapularis ist eine der *C. sericea* nahestehende Art, die auf die Inseln Japen und Miosnom beschränkt ist. Man darf wohl annehmen, dass sie sich zunächst als Inselform vom *sericea*-Stamm abgetrennt hat und infolge lange währender Isolierung Artcharaktere erwarb, bevor *C. sericea* zum zweiten Male auf Japen einwanderte. Die Dinge liegen also geradeso wie bei *Ptilinopus rivolii* und *Ptilinopus miqueli*.

Dicaeum geelvinkianum geelvinkianum A. B. Meyer.

Dicaeum geelvinkianum Meyer, *Sitzungsber. K. Akad. Wiss. Wien*, vol. lxx, p. 120 (1874—Jobi).
Dicaeum jobiense Salvadori, *Ann. Mus. Civ. Gen.* vol. vii, p. 945 (1876—Jobi).

Gesammelt von : A. B. Meyer, Beccari, Bruijn, Stein.

220.	K. Baroe.	20. II.	♂3.	Fl. 51 ;	Gew. 7,3	
553.	Serui.	10. III.	♂3.	,, 51 ;	,, —	
341.	850 m.	26. II.	♂2.	,, 50 ;	,, 7,5	
219.	Serui.	20. II.	♂2.	,, 51,5 ;	,, 8 ;	Flügelmauser.
632.	,,	24. III.	?.	,, 51 ;	,, 7	(♂ ?). ,,
221.	,,	20. II.	♂.	,, — ;	,, 7,1 ;	Nestling.
549.	850 m.	10. III.	♀1.	,, 47 ;	,, —	
483.	450 m.	9. III.	♀0.	,, 50 ;	,, 7,7	
	Serui.	26. II.	♀0.	,, 45,5 ;	,, 6,6	

Die Rasse ist auf Japen beschränkt. Über die Rassengliederung siehe Stresemann, *Arch. für Naturgesch.* 1923, A. 7, p. 66.

No. 221 : "Juv. von No. 220, wurde gefüttert. Nur kleine Insekten im Magen."

Melanocharis nigra unicolor Salvad.

Melanocharis unicolor Salvadori, *Ann. Mus. Civ. Gen.* vol. xii, p. 333 (1878—Jobi).
Melanocharis bicolor Ramsay, *Proc. Linn. Soc. N.S.W.* vol. iii, p. 277 (1879—Goldie River, SO-Neuguinea).

Gesammelt von : v. Rosenberg, Beccari, Stein.

498.	600 m.	10. III.	♂2.	Fl. 64 ;	Gew. —	
394.	—	5. III.	♂2.	,, 63 ;	,, 12	
565.	850 m.	13. III.	♂2.	,, (61,5) ;	,, 12,2 ;	Flügelmauser.
381.	450 ,,	5. III.	♂2.	,, (62,5) ;	,, 12	,,
496.	600 ,,	10. III.	♂2.	,, 64 ;	,, —	
590.	850 ,,	15. III.	♂2.	,, 62,5 ;	,, 11	

Nach Salvadoris Vorgang wurde bisher der Name *unicolor* auf die Bewohner von Japen und Miosnom beschränkt und die Population von Neuguinea als *bicolor* Ramsay abgetrennt. Es zeigt sich aber jetzt, dass die behaupteten Unterschiede nicht bestehen, denn auch die alten ♂♂ von Japen haben durchweg einen weisslichen Fleck an der Innenfahne der äusseren Steuerfedern und eine weisse Basis der seitlichen Unterschwanzdeckfedern. Sie stimmen mit einer Serie vom Sepik gut überein, wenn auch bei Sepikvögeln der weissliche Fleck an der Innenfahne der äusseren Steuerfedern durchschnittlich etwas deutlicher ausgeprägt ist als bei der Japen-Serie. *Bicolor* Ramsay wird also als Synonym von *unicolor* Salvadori zu betrachten sein.

Zosterops minor minor A. B. Meyer.

Zosterops albiventer minor Meyer, *Sitzungsber. K. Akad. Wiss. Wien*, vol. lxx, p. 115 (1874—Jobi).
Zosterops aureigula Salvadori, *Ann. Mus. Civ. Gen.* xii, p. 340 (1878—Jobi).

Gesammelt von : A. B. Meyer, Doherty, Stein.

560.	850 m.	13. III.	♂2.	Fl. 57 ;	Gew. 10		
380.	450 „	5. III.	♂2.	„ 55 ;	„ 10,5 ;	Flügelmauser.	
467.	450 „	9. III.	♂2.	„ 56 ;	„ 10,4	„	
440.	450 „	7. III.	♂0.	„ 55 ;	„ 11		
478.	600 „	9. III.	♀2.	„ 56 ;	„ 9,5		
338.	450 „	5. III.	♀1.	„ 54 ;	„ 10,5		

Jobi ist die terra typica dieser Rasse, die man jetzt auch vom Cyclopengebirge und vom Sepikgebiet kennt. Unsere drei Sepikstücke stimmen ganz mit denen von Japen überein.

Cracticus cassicus (Bodd.).

Gesammelt von : Doherty, Stein.

335.	Serui.	26. II.	♂2.	Fl. 179 ;	Gew. 165,2		
302.	„	25. II.	♂0.	„ 175 ;	„ 163 ;	Flügelmauser.	
178.	„	17. II.	♀1.	„ 171 ;	„ 152		

Cracticus quoyi quoyi (Lesson).

Gesammelt von : A. B. Meyer, Stein.

177.	Serui.	17. II.	♀2.	Fl. 184 ;	Gew. 200
295.	„	25. II.	♀2.	„ 176 ;	„ 187

Mageninhalt : Insekten ; grosse Zweiflügler (295) ; Insekten, hauptsächlich Käfer (177).

Pitohui kirhocephalus jobiensis (A. B. Meyer).

Rhectes jobiensis Meyer, *Sitzungsber. K. Akad. Wiss. Wien*, vol. lxix, p. 205 (1874—Jobi).

Gesammelt von : A. B. Meyer, Beccari, Bruijn, Guillemard, Doherty, Stein.

339.	Serui.	26. II.	♂1.	Fl. 121 ;	Gew. 82 ;	Grossgefiedermauser.	
176.	„	17. II.	♂0.	„ 120 ;	„ 81	„	
171.	„	17. II.	♂0.	„ 119 ;	„ 83	„	
455.	450 m.	7. III.	" ♂ ? "	„ 117 ;	„ 84,2		
226.	Serui.	20. II.	♀1.	„ 122 ;	„ 87		
399.	„	2. III.	♀0.	„ 115 ;	„ 82		
200.	„	19. II.	♀0.	„ 109 ;	„ 87 ;	1. Ja. Kl. (Kehle dunkler, Schnabel kürzer).	

Dies ist wohl die ausgeprägteste endemische Rasse unter den Vögeln von Japen ; sie bewohnt auch die nahe gelegene Insel Kurudu. Auf dem gegenüber-

liegenden Festland wird sie durch die ähnliche, aber viel blassere Rasse *meyeri* vertreten, welche das Stromgebiet des Mamberano und die Nordküste ostwärts bis Takar bewohnt und weiter östlich durch die unlängst beschriebene, etwas dunklere Form *proteus* Hartert (*Nova Guinea*, Bd. xv, *Zoologie*, p. 468) ersetzt wird. Letztere reicht ostwärts mindestens bis zum Cyclopengebirge.

Mageninhalt: Beeren, einige Zweiflügler (339), Flügeldecken von Käfern, Fruchtfleisch (176), Beeren (171), Insekten (226), Insekten, darunter Käfer (200).

Pitohui ferrugineus holerythrus (Salvad.).

Rectes holerythra Salvad., *Ann. Mus. Civ. Gen.* vol. xii, p. 474 (1878—Jobi).

Gesammelt von: Beccari, Bruijn, Doherty.

Nach Rothschild & Hartert, *Nov. Zool.* Bd. x, 1903, p. 97, von *P. f. ferrugineus* dadurch unterschieden, dass die röstliche Farbe ober- und unterseits lebhafter und dunkler ist.

Pitohui dichrous dichrous (Bonap.).

Gesammelt von: Stein.

362.	450 m.	4. III.	♂1.	Fl. 104;	Gew. 69	
516.	450 „	12. III.	♂1.	„ 107;	„ 71,5	
409.	450 „	5. III.	♂1.	„ 108,5;	„ 73;	Flügelmauser.
408.	450 „	5. III.	♂0.	„ 109;	„ 62;	Jugendkleid.

Verglichen mit einer Serie vom Sepikgebiet sind diese ♂♂ von Japen auf Ober- und Unterseite ein klein wenig intensiver rostfarben, aber der Unterschied ist zu gering, um eine Benennung zu rechtfertigen.

Mageninhalt: Kernchen und Fleisch von Beeren (362).

Myiolestes megarhynchus obscurus (A. B. Meyer).

Rectes obscura A. B. Meyer, *Sitzungsber. K. Akad. Wiss. Wien*, lxix, p. 390 (1874—Jobi).

Gesammelt von: A. B. Meyer, Beccari, Bruijn, Stein.

♂♂ (25. II.–13. III.) Fl. 90–94²–94,5–95–96²–96,5–98,5–100–101.
Gew. 34²–34,5–36–36,5–37–37,9–39,5²–40,5–41.

♀♀ (5.–12. III.) Fl. 94–94,5–95²–98.
Gew. 34–36,3–36,5–37.

5 ♂♂ in Flügelmauser.

Gesammelt bei Serui und in einer Höhe von 450 bis 850 m.

Diese Rasse ist augenscheinlich auf die Insel Japen beschränkt. Auf dem gegenüberliegenden Festland, vom Mamberano bis zur Humboldt-Bai, lebt eine Form, die sich von *obscurus* in der Serie deutlich unterscheidet durch bräunlichere, weniger graue Tönung der Unter- und Oberseite und den Namen *M. m. hybridus* Meise zu tragen hat. Wir konnten 6 Exemplare von *hybridus* mit 16 Exemplaren von *obscurus* vergleichen. In der Schnabelfärbung unterscheiden sich die Geschlechter wie bei der Rasse *M. m. maeandrinus* Stres.: beim alten ♂ ist der Schnabel ganz schwarz, beim ♀ und ♂ juv. ist er düster hornfarben.

Pachycephala griseiceps jobiensis A. B. Meyer.

Pachycephala griseiceps var. *jobiensis* Meyer, *Sitzungsber. K. Akad. Wiss. Wien*, vol. lxix, p. 394 (1874 —Jobi).

Gesammelt von: v. Rosenberg, Meyer, Beccari, Doherty, Stein.

422.	450 m.	6. III.	♂2.	Fl. 82,5;	Gew. 22	
435.	450 „	6. III.	♂2.	„ 83;	„ 22,2	
396.	450 „	5. III.	♂1.	„ 82;	„ 21,5	
568.	850 „	13. III.	♂1.	„ 83;	„ 25	
466.	450 „	9. III.	♂0.	„ 80;	„ 22,2	
576.	850 „	14. III.	♂0.	„ 83,5;	„ —	
541.	850 „	12. III.	♂0.	„ 82;	„ 22	
577.	850 „	14. III.	♀0.	„ 80,5;	„ —	
416.	450 „	6. III.	♀0.	„ 82;	„ —	Flügelmauser.
423.	450 „	6. III.	?	„ 80;	„ 22,5;	1. Ja. Kl.

Siehe unter Waigeu!

Monarcha guttula (Garnot).

Gesammelt von: Beccari, Bruijn, Doherty, Stein.

638. 23. III. ♂3. Fl. 83; Gew. 16

Monarcha alecto chalybeocephala (Garnot).

Gesammelt von: A. B. Meyer, Beccari, Doherty, Stein.

203.	Serui.	19. II.	♂2.	Fl. 89,5;	Gew. 24,4	
192.	„	18. II.	♂2.	„ 89;	„ 26;	Flügelmauser.
204.	„	19. II.	♂1.	„ 90;	„ 22	
291.	„	24. II.	♂1.	„ 89;	„ 25,5	„
622.	K. Baroe.	22. III.	♂1.	„ 91;	„ 25,8	„
334.	Serui.	26. II.	"♀?"	„ 81,5;	„ 22	
182.	„	17. II.	♀1.	„ 87;	„ 22,8	
225.	„	23. II.	♀0.	„ 82,5;	„ 22,7	
198.	„	18. II.	♀0.	„ 82,5;	„ 21	

Monarcha cinerascens geelvinkiana A. B. Meyer.

Monarcha geelvinkianus Meyer, *Sitzungsber. Abh. Ges. Isis, Dresden*, 1884, p. 23 (1884 Misori und Jobi).

Gesammelt von: Laglaize.

Diese Art ist bisher nur von Laglaize gesammelt worden und zwar bei Ansus auf Japen und auf der Insel Korido, vergl. unsere Bemerkungen unter Numfor.

Arses telescophthalmus insularis (A. B. Meyer).

Monarcha insularis Meyer, *Sitzungsber. K. Akad. Wiss. Wien*, vol. lxix, p. 395 (1874—Jobi).

Gesammelt von: A. B. Meyer, Beccari, Guillemard, Doherty, Stein.

292.	Serui.	24. II.	♂2.	Fl. 78,5;	Gew. "27,5" (17,5?).	
234.	„	22. II.	♂0.	„ 82;	„ 18	
207.	„	19. II.	♂0.	„ 77;	„ 18;	Flügelmauser.
551.	—	6. III.	♂0.	„ 78;	„ 17	„
214.	Serui.	19. II.	♂0.	„ 80;	„ 19	„
472.	450 m.	9. III.	♂0.	„ 76;	„ 17,7;	1. Ja. Kl.
212.	Serui.	9. II.	♂0.	„ 76;	„ 16;	Flügelmauser.
419.	450 m.	6. III.	♂0.	„ 76,5;	„ 15,7;	1. Ja. Kl.
236.	Serui.	18. II.	♀1.	„ 74;	„ 22,2	
285.	„	24. II.	♀1.	„ 73;	„ 16	
327.	„	26. II.	♀1.	„ 79;	„ 18	

Übereinstimmend mit einer Serie aus dem Sepikgebiet.

Rhipidura leucophrys melaleuca (Quoy & Gaim.).

Gesammelt von : Doherty, Stein.

222.	Serui.	20. II.	♂2.	Fl. 105 ;	Gew. 32 ;	Flügelmauser.
1891.	„	18. II.	♀0.	„ 100 ;	„ 30	

Rhipidura threnothorax nigrivertex subsp. nova.

Gesammelt von : Stein.

519. 850 m. 12. III. ♂2. Fl. 79 ; Gew. 19,5

Das einzige von Herrn Stein in 850 m. Höhe erbeutete Exemplar unterscheidet sich von 21 zum Vergleich benutzten Bälgen aus verschiedenen Gegenden Neuguineas sehr scharf durch die Färbung des Oberkopfes, der nicht bräunlich und dem Rücken gleich gefärbt, sondern von russschwarzer Färbung ist, mit leicht bräunlich gefärbten Endsäumen der Federn. Die weissen Flecken der Brustfedern sind so gross wie bei Arfakvögeln. Wir nehmen an, dass es sich um eine ausgeprägte Inselrasse handelt und dass der Typus von *R. fumosa* Schlegel, welchen v. Rosenberg auf Japen sammelte, nicht hierher gehört, da die in der Beschreibung angegebene Flügellänge und Brustfärbung durchaus nicht auf *R. threnothorax* passt. Ein anscheinend sich im Jugendkleid befindendes Stück von *R. threnothorax*, von Tappenbeck (No. 456) am Ramu gesammelt, ist im wesentlichen wie der adulte Vogel gefärbt und hat die gleichen weissen Brustflecken wie dieser.

Typus : ♂ ad. Japen, 12. März 1931, Stein leg. No. 519

Rhipidura fumosa Schlegel.

Rhipidura fumosa Schlegel, *Ned. Tijdschr. Dierk.* vol. iv, p. 42 (1871—Jobi).

Gesammelt von : v. Rosenberg.

Siehe unter *Rhipidura threnothorax* !

Rhipidura rufiventris gularis (S. Müll.).

Gesammelt von : A. B. Meyer, Beccari, Bruijn, Doherty, Stein.

♂♂ (6.–23. III.)	Fl. 79–80–82²–87–88–89–91–91,5–92.
	Gew. 14–14,2–14,5–15²–15,2–16–17.
♂ juv. (7. III.)	Fl. 84 ; Gew. 15,2.
♀ (4. III.)	Fl. 83,5 ; Gew. 18.

1 ♂ in Flügelmauser.

Gesammelt in Höhen zwischen 400 und 850 m.

Rhipidura hyperythra mülleri A. B. Meyer.

Gesammelt von : Stein.

527.	850 m.	12. III.	♂2.	Fl. 78 ;	Gew.	12,5
510.	850 „	12. III.	♂2.	„ 82,5 ;	„	12
571.	850 „	14. III.	♂2.	„ 80,5 ;	„	—
505.	850 „	12. III.	♂1.	„ 80,5 ;	„	12,8
520.	850 „	12. III.	♂1.	„ 77 ;	„	11,5
543.	850 „	12. III.	♀2.	„ 76 ;	„	11,5

Ganz wie Sepikvögel.

Rhipidura rufidorsa A. B. Meyer.

Rhipidura rufidorsa Meyer, *Sitzungsber. K. Akad. Wiss. Wien*, vol. lxx, p. 200 (1874 Rubi, Jobi).

Gesammelt von : A. B. Meyer, Bruijn, Doherty, Stein.

364.	450 m.	4. III.	♂2.	Fl. 65 ;	Gew. 9,5
425.	450 „	6. III.	♂1.	„ 64 ;	„ 10
507.	850 „	12. III.	♀0.	„ 64 ;	„ 9

Mageninhalt : Chitin von Insekten (364, 425).

Muscicapa griseosticta (Swinh.).

Gesammelt von : Stein.

340.	26. II.	♀0.	Fl. 83 ;	Gew. 16,1

Zugvogel aus Südost-Sibirien.

Mageninhalt : Chitin, Flügeldecken von Käfern (340), Chitinteile von Insekten (Manokwari 144).

Poecilodryas brachyura albotaeniata (A. B. Meyer).

Amaurodryas albotaeniata Meyer, *Sitzungsber. K. Akad. Wiss. Wien*, vol. lxix, p. 498 (1874 —Jobi).

Gesammelt von : A. B. Meyer, Beccari, Stein.

439.	450 m.	7. III.	♂0.	Fl. 85 ;	Gew. 27,5
442.	450 „	7. III.	♂0.	„ 84,5 ;	„ 27,3

Die beiden von Stein gesammelten Stücke bestätigen die Verschiedenheit dieser Rasse, welche nicht schwarzrückig ist wie die im Cyclopen-Gebirge und Sepikgebiet lebende Form *dumasi* Og.-Grant, sondern einen schwärzlich grauen Rücken besitzt. Bei *P. b. brachyura* vom Vogelkopf und der Wandammenhalbinsel ist der Rücken noch heller grau. Die Japen-Form steht also in diesem Fall derjenigen vom Vogelkopf näher als derjenigen vom naheliegenden Festland.

Microeca flavovirescens Gray.

Gesammelt von : Beccari, Guillemard, Doherty, Stein.

482.	450 m.	9. III.	♂3.	Fl. 83 ;	Gew. 17,6
546.	850 „	12. III.	♂2.	„ 84 ;	„ 17
537.	850 „	12. III.	♂1.	„ 82 ;	„ 18
521.	850 „	12. III.	♂0.	„ 82 ;	„ 16
386.	450 „	5. III.	♀2.	„ 76 ;	„ 15
548.	850 „	12. III.	♀0.	„ 76 ;	„ 14
378.	450 „	4. III.	♀0.	„ 71,5 ;	„ 13,2

Ober- und Unterseite etwas gelblicher als bei Waigeuvögeln.

Gerygone chrysogaster chrysogaster Gray.

Gesammelt von : Beccari, Doherty, Stein.

561.	850 m.	13. III.	♂2.	Fl. 56 ;	Gew. 8
355.	450 „	3. III.	♂2.	„ 55 ;	„ 8,5
357.	450 „	3. III.	♂0.	„ 56 ;	„ 8
363.	450 „	4. III.	?.	„ 54,5 ;	„ 8
453.	450 „	7. III.	♀0.	„ 52 ;	„ 7,3

Einen Vergleich mit Exemplaren von den Aruinseln (terra typica) haben wir nicht anstellen können, aber Exemplare vom Sepikgebiet stimmen mit solchen aus Japen überein.

Gerygone magnirostris affinis A. B. Meyer.

Gerygone affinis Meyer, *Sitzungsber. K. Akad. Wiss. Wien*, vol. lxx, p. 117 (1874—Jobi).

Gesammelt von : A. B. Meyer, Beccari.

Gerygone palpebrosa wahnesi A. B. Meyer.

Gesammelt von : Doherty, Stein.

468.	450 m.	9. III.	♂3.	Fl. 55,5 ;	Gew. 8,7	
379.	450 „	4. III.	♂2.	„ 54 ;	„ 8	
562.	850 „	13. III.	♂2.	„ 52 ;	„ 9 ;	Flügelmauser.
566.	850 „	13. III.	♂1.	„ 57 ;	„ —	
563.	850 „	13. III.	?.	„ 55,5 ;	„ 8,5 (♂ !).	
427.	450 „	6. III.	♂0.	„ 54 ;	„ 7,7	
392.	500 „	4. III.	♀0.	„ 52,5 ;	„ 6,9	
530.	850 „	12. III.	♀0.	„ 53 ;	„ —	Flügelmauser.
454.	450 „	7. III.	"♀?"	„ 53 ;	„ 7,4	
564.	850 „	13. III.	?.	„ 50 ;	„ 8	

Todopsis wallacei Gray.

Gesammelt von : Stein.

536.	850 m.	12. III.	♂3.	Fl. 48 ;	Gew. 8,5
476.	600 „	9. III.	♂2.	„ 47 ;	„ 8
372.	450 „	5. III.	♂2.	„ 49,5 ;	„ 8,2
404.	—	5. III.	♂1.	„ 49 ;	„ 8,2
393.	400 m.	4. III.	"♀?"	„ 46 ;	„ 8 (♀ !).
405.	—	5. III.	?.	„ 47 ;	„ 7,5 (♀ !).
374.	450 m.	4. III.	♀0.	„ 46,5 ;	„ 8

Nr. 374, 393, und 405 haben die Kehle nicht rein weiss wie die übrigen, sondern mit gelbbräunlichem Anflug. Vielleicht ist das ein Kennzeichen des ♀ gegenüber dem alten ♂. Die Serie ist ununterscheidbar von einer Serie aus dem Sepikgebiet.

Mageninhalt : Chitin von Insekten (374, 476).

Craterosceli murinus murinus (Selater).

Gesammelt von : Doherty, Stein.

538.	850 m.	11. III.	♂1.	Fl. 62 ;	Gew. 15
319.	Serui.	26. II.	"♂?"	„ 59 ;	„ —
552.	850 m.	13. III.	?.	„ 54 ;	„ 13
573.	850 m.	14. III.	♀0.	„ 55 ;	„ 14

Ununterscheidbar von Stücken aus Nord-Neuguinea. Das ♀ hat den Oberkopf dem ♂ ungefähr gleich gefärbt, im Gegensatz zur Waigeurasse mit deutlichem Geschlechtsdimorphismus.

Sericornis magnirostris jobiensis subsp. nova.

Gesammelt von : Stein.

441.	7. III.	♂2.	Fl. 61,5 ;	Gew. 13	
529.	12. III.	♂2.	„ 60 ;	„ 12,5	
406.	7. III.	♂2.	„ 62,5 ;	„ 13,5	
451.	7. III.	♂0.	„ 55,5 ;	„ 12	
428.	7. III.	♀2.	„ 56 ;	„ 12	
438.	7. III.	♀0.	„ 55,5 ;	„ 11,5	
436.	7. III.	♀0.	„ 55 ;	„ 11,8	
389.	5. III.	♀0.	„ 55 ;	„ 12,6	
430.	7. III.	♀0.	„ 55,5 ;	„ 12,5 ;	juv.
445.	7. III.	♀.	„ 56 ;	„ 12,2	„

Alle in 450 m. Höhe gesammelt.

Sericornis magnirostris war im papuanischen Gebiet nur von dem Festland Neuguineas bekannt. Herr Stein entdeckte auf Japen eine Rasse, die der Rasse des Arfakgebirges (*S. m. cantans* Mayr = *arfakiana* auct.) nahesteht, aber durch die Färbung der Oberseite, besonders des Rückens, abweicht, der weit mehr grünlich oliv, weniger röstlich oliv erscheint. *S. beccarii cyclopum* Hartert [1] hat ungefähr dieselbe Färbung der Oberseite wie *S. magnirostris jobiensis*, unterscheidet sich aber auffällig durch einen rein weissen oder leicht bräunlich gefärbten Strich über dem Zügel und durch ebenso gefärbte Flecke auf dem oberen und unteren Lidrande. Der Oberschnabel ist bei *jobiensis* schwarz, der Unterschnabel zuweilen gleichfalls schwarz, zuweilen aber sehr dunkel hornfarben. *S. m. cantans* hat die gleiche Schnabelfärbung wie *jobiensis*, während *S. b. cyclopum* einen viel helleren Ober- und Unterschnabel hat als die beiden anderen Formen. Auch die Füsse sind bei *S. beccarii cyclopum* erheblich blasser.

Typus: Japen, ♂ ad. 7. März 1931, Stein leg. Nr. 406.

Im Ju. Kl. sind Kehle, Brust, Körperseiten und Untersehwanzdecken schmutzig rostbraun gefärbt. Die ganze Oberseite ist düster braun ohne Spur von Oliv. Der Schnabel ist tiefschwarz.

Mageninhalt: Insekten (389).

Sericornis spilodera spilodera (Gray).

Gesammelt von: Stein.

♂♂ (3.–7. III.) Fl. 56–57[2]–58,5–59[2]–59,5–60,5[1]–61.
Gew. 10,2[2]–10,5[3]–10,9–11–11,2[2]–11,5–12,5.
♀♀ (4.–7. III.) Fl. 56[2]; Gew. 9,7–10.
2 ♂♂ in Flügelmauser.

Gesammelt in Höhen von 450–850 m.

Die ♀♀ haben die Basis der Oberkopffedern heller als die ♂♂, der Endsaum ist schwarz, ziemlich scharf abgesetzt; der Oberkopf wirkt also mehr gefleckt als beim ♂.

Motacilla cinerea caspica (Gm.).

Gesammelt von: Stein.

613. K. Baroe. 21. III. ?. Fl. 82; Gew. 18,3

Coracina coeruleogrisea (Gray).

Campephaga strenua Schlegel, *Nederl. Tijdschr. Dierk.* vol. iv, p. 44 (1871—Jobi und Arfak).

Gesammelt von: v. Rosenberg, A. B. Meyer.

Coracina boyeri boyeri (Gray).

Gesammelt von: A. B. Meyer, Beccari, Doherty, Stein.

233.	Serui.	21. II.	♂1.	Fl. 127;	Gew. —
348.	450 m.	2. III.	♂1.	„ 123;	„ 60
231.	Serui.	21. II.	♂0.	„ 128;	„ 61
347.	450 m.	2. III.	♂1.	„ 122;	„ 59; juv.

Die Alten befinden sich in Flügelmauser.

Mageninhalt: Kleine Insekten (233), Fruchtschalen (347), Brei von Früchten und kleinen Kernen (231).

[1] Die Gründe, welche uns veranlassen, *Sericornis beccarii* für eine von *Sericornis magnirostris* verschiedene Art anzusehen, werden wir bei der Bearbeitung der Weyland-Ausbeute des Herrn Stein darlegen.

Coracina papuensis papuensis (Gm.).

Gesammelt von : Guillemard.

Edolisoma melan melan (Lesson).

Edoliisoma melan tommasonis Rothschild & Hartert, *Nov. Zool.* vol. x, p. 206 (1903—Jobi).

Gesammelt von : A. B. Meyer, Bruijn, Guillemard, Doherty, Stein.

629.	K. Baroe.	24. III.	♂₀.	Fl. 124 ;	Schw. 103 ;	Gew. 54,3 ;	Flügelmauser, noch einige braune Federn.
305.	Serui.	25. II.	♂₀.	„ 121 ;	„ 93 ;	„ 50,9	
343.	„	26. II.	" ♂ ? "	„ 123 ;	„ 103 ;	„ 55,4 (♂ !).	
444.	450 m.	7. III.	?.	„ 125 ;	„ 103 ;	„ — (♂ !) ; Flügelmauser.	
2972.	—	12. VII.	♂₁.	„ 124 ;	„ 101 ;	„ —	
1971.	—	9. VII.	♀₀.	„ 120 ;	„ 93 ;	„ —	

Die untersuchten Exemplare unterscheiden sich weder durch die Schnabelform, noch im weiblichen Geschlecht durch die Färbung von einer Serie aus dem Ramu- und Sepikgebiet (darunter 6 ♀♀).

Edolisoma ceramense incertum (A. B. Meyer).

Campephaga incerta Meyer, *Sitzungsber. K. Akad. Wiss. Wien*, vol. lxix, p. 387 (1874—Jobi).

Gesammelt von : A. B. Meyer, Bruijn.

Hirundo tahitica frontalis (Quoy & Gaim.).

Gesammelt von : Bruijn, Stein.

209.	19. II.	♂₀.	Fl. 100,5 ;	Gew. 14 ;	juv.
201.	19. II.	?.	„ 107,5 ;	„ 15	

Pitta mackloti mackloti Temm.

Gesammelt von : Bruijn, Stein.

190.	Serui.	18. II.	♂₂.	Fl. 102 ;	Gew. 88
313.	„	25. II.	♂₂.	„ 103 ;	„ 88,5
312.	„	25. II.	♂₂.	„ 109,5 ;	„ 90
345.	„	26. II.	♂₂.	„ 102,5 ;	„ 81
320.	„	26. II.	♂₂.	„ 106 ;	„ 83,8
226.	„	20. II.	♂₂.	„ 101,5 ;	„ 78
603.	„	20. III.	♂₁.	„ 103,5 ;	„ —

Diese Serie gehört zu *mackloti* und nicht zu *habenichti*, welche den Fuss des Cyclopengebirges bewohnt.

Hemiprocne mystacea mystacea (Lesson).

Gesammelt von : A. B. Meyer, Bruijn, Stein.

462.	450 m.	8. III.	♀₀.	Fl. 221 ;	Gew. 81,5
589.	850 „	15. III.	♀₀.	„ 226 ;	„ —
463.	450 „	8. III.	♀₀.	„ 216 ;	„ 85

Collocalia esculenta subsp.

Gesammelt von : Beccari, Stein.

Siehe unter Numfor.

Collocalia vanikorensis hirundinacea Stres.

Gesammelt von : Stein.
Siehe unter Waigeu.

Collocalia vanikorensis baru Stres. & Pal.

Gesammelt von : Stein.
Siehe unter Waigeu.

Caprimulgus macrurus yorki Math.

Caprimulgus macrurus yorki Mathews, *Nor. Zool.* vol. xvii. p. 291 (1912—Kap York).

Gesammelt von : Stein.

324. Serui. 25. II. ?. Fl. 178

Dieses Stück und drei Exemplare aus Manokwari wurden mit 1 ♂ vom Astrolabegebirge und einem ♀ von Nord-Queensland (beide im Naturhist. Museum Wien) verglichen, mit denen sie ziemlich genau übereinstimmen.

Podargus papuensis papuensis Quoy & Gaim.

Gesammelt von : Bruijn, Doherty, Stein.

401.	300 m.	3. III.	♂1.	Fl. 277 ;	Schw. 247 ;	Gew. 350
616.	K. Baroe.	22. III.	♂ ?	„ 280 ;	„ —	„ —
397.	Serui.	2. III.	♀0.	„ 277 ;	„ 252 ;	„ 352
615.	„	21. III.	♀2.	„ 273 ;	„ 242 ;	„ —
330.	„	26. II.	♀1.	„ 277 ;	„ 255 ;	„ 294
342.	„	26. II.	♀1.	„ 273 ;	„ 350 ;	„ 300

397 hat Stein als ♀ etikettiert und ein ganz kleines Ovarium gezeichnet, da aber der Vogel mit den beiden ♂♂ (durch den grauliehen Ton des ganzen Federkleides) völlig übereinstimmt, liegt wahrscheinlich ein Irrtum vor. Ein ♀ ad. von Manokwari, Stein leg. Nr. 663, ist viel grösser : Fl. 304 ; Schw. 292 ; Gew. 375.

Mageninhalt : Insekten, hauptsächlieh Schaben (342).

Podargus ocellatus ocellatus Quoy & Gaim.

Gesammelt von : A. B. Meyer, Bruijn, Beccari, Guillemard, Doherty, Stein.

398.	150 m.	2. III.	♂1.	Fl. 195 ;	Schw. 165 ;	Gew. 201
331.	Serui.	26. II.	♂1.	„ 194 ;	„ 160 ;	„ 206
569.	Tiefebene.	14. III.	♂1.	„ 189 ;	„ 150 ;	„ 110
623.	K. Baroe.	22. III.	♀1.	„ 193 ;	„ 183 ;	„ 156

Unerklärlich ist uns die Langschwänzigkeit von Nr. 623.
Mageninhalt : 1 Heuschrecke (331). Insektenreste (kleine Käfer) (398).

Tyto tenebricosa arfaki (Schleg.).

Gesammelt von : Stein.

655. K. Baroe. 23. III. ♀1. Fl. 280 ; Gew. 675

Mageninhalt : ein Vertreter der Peramelidae.

Ninox dimorpha (Salvad.).

Gesammelt von : Stein.

14. VII. ♂0. Fl. 225 ; Schw. 143 ; Füsse, Iris gelb. Wachshaut hellbräunlichgrün.

Mageninhalt : Heuschrecken, 1 Eidechse.

Merops ornatus Lath.

Gesammelt von : Beccari, Doherty, Stein.

595. 17. III. ♂1. Fl. 108,5 ; Gew. 261 ; Flügelmauser.

Zugvogel aus Australien.

Rhyticeros plicatus ruficollis (Vieill).

Gesammelt von : Bruijn, Stein.

297. Serui. 25. II. ♂1. Fl. 419 ; Gew. 1925 ; Schnabel ohne Wülste.
2971. „ 14. VII. ♂1. „ 458 ; „ — „ mit 4 „

Im Zool. Mus. Berlin befinden sich weiter folgende Exemplare : 2 Neuguinea Flügel 430–449, 1 Malu 410, 3 Taua 416–417–421, 1 Herbertshöhe 410 mm. No. 2971 scheint also ein Riese zu sein !

Mageninhalt : Früchte mit pflaumengrossen Kernen.

" 1 Exemplar in Wangar erlegt, als es am Boden nach Krabben suchte, Scherenreste im Schlund."

Eurystomus orientalis crassirostris Sclater.

Gesammelt von : Stein.

610. K. Baroe. 21. III. ♂1. Fl. 201,5 ; Gew. 196 ; Flügelmauser.
513. 450 m. 12. III. ♂1. „ 203 ; „ 110 „
625. K. Baroe. 22. III. ♂ ? „ 203 ; „ 165 „

Oberkopf, Nacken, Interscapulium schwärzlicher, weniger grünschwarz als bei Vögeln vom Sattelberg und aus Neupommern ; vielleicht zur Rasse *waigiouensis* gehörig, doch konnten wir keine Exemplare von Waigeu vergleichen.

Eurystomus orientalis pacificus (Lath.).

Gesammelt von : Guillemard, Doherty.

Zugvogel aus Australien.

Alcyone azurea ochrogaster Rchw.

Gesammelt von : Beccari, Stein.

249. Serui. 22. II. ♂0. Fl. 72 ; Gew. 35
250. „ 22. II. ♀1. „ 75,5 ; „ 39,5

Unterseite ebenso hell wie bei Vögeln vom Mamberano und Sepik.—" Lebt an Bächen wie *Alcedo* " (Stein).

Mageninhalt : 1 Fisch (Mamberano 101).

Ceyx lepidus solitarius Temm.

Gesammelt von: Bruijn, Doherty, Stein.

631.	K. Baroc.	24. III.	♂0.	Fl. 52;	Gew. 13	
493.	450 m.	10. III.	♀0.	„ 54,5;	„	—
370.	450 m.	4. III.	♀.	„ (53);	„	16,5
556.	400 m.	13. III.	♀0.	„ 55;	„	16

Siehe unter Waigeu!

Halcyon nigrocyanea quadricolor (Oust).

Cyanalcyon quadricolor Oustalet, *Le Naturaliste*, p. 323 (1880—Geelvinkbai).

Gesammelt von: Bruijn.

Guillemard (*Proc. Zool. Soc. Lond.* 1885, pp. 626–627) erhielt durch Bruijn drei bei Ansus gesammelte ♂♂, von denen eins ganz wie *nigrocyanea*, ein zweites ganz wie *quadricolor* gefärbt waren, während das dritte zwischen beiden Extremen vermittelte, indem es einen blauen Bauch mit einzelnen zerstreut stehenden rostbraunen Federn besass. Japen gehört also wohl zum Übergangsgebiet zwischen *nigrocyanea* und *quadricolor*, ebenso wie das Mündungsgebiet des Wanggarflusses, worüber wir später berichten werden.

Halcyon saurophaga saurophaga Gould.

Gesammelt von: Bruijn, Doherty.

Siehe unter Waigeu!

Halcyon sancta sancta Vig. & Horsf.

Gesammelt von: v. Rosenberg, Bruijn, Doherty.

Zugvogel aus Australien.

Syma torotoro torotoro Lesson.

Gesammelt von: v. Rosenberg, Beccari, Bruijn, Doherty, Stein.

2529.	200 m.	14. VII.	♂1.	Fl. 79
2530.	Japen.	14. VII.	♂1.	„ 77

Ganz mit Vögeln aus Waigeu übereinstimmend.

Sauromarptis gaudichaud (Quoy & Gaim.).

Gesammelt von: v. Rosenberg, Beccari, Bruijn, Doherty, Stein.

315.	Serui.	26. II.	♂0.	Fl. 137,5;	Gew. 127	
322.	„	26. II.	♂0.	„ 137;	„ 133;	Schwarze Säume an Brust- und Halsringfedern.
329.	„	26. II.	♀0.	„ 143;	„ 170;	Kleingefiedermauser.

Siehe unter Waigeu.

Melidora macrorhina jobiensis Salvad.

Melidora jobiensis Salvadori, *Orn. Pap.* i, p. 502 (1880—Jobi).

Gesammelt von: Beccari, Bruijn, Stein.

620.	K. Baroc.	22. III.	♂0.	Fl. 115;	Gew. 110;	juv.
617.	Serui.	22. III.	♀1.	„ 122,5;	„ 109	
343.	„	26. II.	♀1.	„ 126;	„ 122	

617 hat Andeutung von blauen Federsäumen am Oberkopf. Siehe unter Waigeu.

Cuculus optatus Gould.

Gesammelt von: A. B. Meyer.
Zugvogel aus dem palaearktischen Asien.

Cacomantis castaneiventris arfakianus Salvad.

Gesammelt von: Stein.

223.	Serui.	20. II.	♂1.	Fl. 111;	Schw. 121,5;	Gew. 32;	Flügelmauser.
624.	K. Baroe.	22. III.	♀0.	„ 110,5;	„ 121;	„ 31,5	

Cacomantis castaneiventris scheint auf Neuguinea in zwei Rassen zu zerfallen, die sich lediglich durch die Grösse unterscheiden. Die grössere, *C. c. weiskei* Rchw., mit Fl. von 114–120 bewohnt die Gebirge von SO-Neuguinea und das Saruwagedgebirge, die kleinere mit Fl. 109–116 schliesst sich westlich an und bewohnt auch Jobi. Ihr gebührt der Name *C. c. arfakianus* Salvad. Färbungsunterschiede scheinen nicht zu bestehen, wenigstens trifft man im Schneegebirge (Utakwa-River) und Arfakgebirge (Siwi) Exemplare an, die mindestens so dunkel sind wie die dunkelsten *weiskei* und neben helleren leben.

Eine Verschiedenheit zwischen Gebirgs- und Flachlandsvögeln, wie von Og.-Grant und Hartert (1925) vermutet wurde, scheint nicht zu bestehen.

Die Geschlechter unterscheiden sich anscheinend dadurch, dass das ♂ auf der Oberseite bläulicher, weniger grünlich schillert als das ♀. Die Jungen scheinen dem ♀ ad. zu gleichen.

Cacomantis variolosus infaustus Cab. & Heine.

Gesammelt von: Stein.

581.	200 m.	18. III.	♂2.	Fl. 120;	Schw. 105;	Gew. 29	
465.	250 m.	7. III.	♂1.	„ 114;	„ 106;	„ 33	
619.	K. Baroe.	22. III.	♂1.	„ 122;	„ 110,5;	„ 29,5	
600.	Serui.	18. III.	♂1.	„ 120,5;	„ 116,5;	„ 31,1	
599.	200 m.	18. III.	♂1.	„ 117,5;	„ 107;	„ 28,7	
604.	Serui.	20. III.	♂1.	„ 121,5;	„ 110,5;	„ 33	

Mit Vögeln von Neuguinea und Waigeu übereinstimmend.

Centropus menbeki jobiensis subsp. nov.

Gesammelt von: Bruijn, Doherty, Stein.

268.	Serui.	24. II.	♂2.	Fl. 227;	Gew. 500
338.	„	26. II.	♂?.	„ 234;	„ 500
346.	„	26. II.	♀1.	„ 223;	„ 450
308.	„	25. II.	♀0.	„ 217;	„ 391; juv.
656.	„	15. III.	♀0.	„ 220;	„ 553 (Mageninhalt 50 g.)

Oberseite mit blauem Schiller und nur schmalen grünlich schillernden Federsäumen. Auch Brust mit grünblauem statt wie bei *C. m. menbeki* mit grünem Schiller. Schnabel kürzer als bei Neuguineavögeln. 1 Sepikvogel nähert sich den Jobivögeln durch seinen bläulichgrünen Schiller.

Typus: ♂ Jobi, 24. Februar 1931, Stein leg. Nr. 268.

Mageninhalt: Gefüllt mit grossen Heuschrecken (268), grosse Heuschrecken (338, 346), meist Heuschrecken, auch Flügeldecken von Käfern (308), 1 Frosch, Heuschrecken (656).

Kakatoe galerita triton (Temm.).

Gesammelt von: v. Rosenberg, Beccari, Doherty, Stein.

2985.	8. VII.	♂1.	Fl. 310	
2979.	8. VII.	♂1.	„ 298	
2977.	8. VII.	♀0.	„ 326	

Probosciger aterrimus stenolophus (v. Oort).

Gesammelt von: A. B. Meyer, Beccari.

Geoffroyus geoffroyi jobiensis Salvad.

Geoffroyus jobiensis Salvadori, *Ann. Mus. Civ. Gen.* Bd. x, p. 30 (1877—Jobi).

Gesammelt von: v. Rosenberg, A. B. Meyer, Beccari, Bruijn, Guillemard, Doherty, Stein.

2854.	Japen.	6. VII.	♂2.	Fl. 171; ad.	
2853.	„	14. VII.	♂1.	„ 174; „	Iris weisslich grün. Füsse graugrün.
252.	Serui.	23. II.	♂0.	„ 168; „	
637.	K. Baroe.	23. III.	♀.	„ 161	

Das ♀ hat den Oberkopf fast ganz grün.
Mageninhalt: Kleine Samen (252).

Eclectus roratus pectoralis (Müll.).

Gesammelt von: v. Rosenberg, Beccari, Doherty, Stein.

235.	Serui.	22. II.	♂2.	Fl. 253;	Gew. 348
309.	„	25. II.	♂1.	„ 247;	„ 348
647.	„	26. II.	♂0.	„ 255;	„ 368

Es befinden sich nur 3 ♂♂ in der Sammlung, alle von Seroei, wohl weil die ♀♀ mit dem Brutgeschäft beschäftigt waren.

Lorius lory jobiensis (A. B. Meyer).

Domicella lori var. *jobiensis* A. B. Meyer, *Sitzungsb. K. Akad. Wiss. Wien*, Bd. lxx, pp. 229, 231–233 (1874—Jobi).

Gesammelt von: v. Rosenberg, A. B. Meyer, Beccari, Bruijn, Stein.

501.	850 m.	12. III.	♂2.	Fl. 171;	Gew. 175
2967.	Japen.	1. VII.	♂1.	„ 171;	„ —
540.	850 m.	12. III.	♂1.	„ 170;	„ —
215.	Serui.	19. II.	♂1.	„ 170;	„ 234
228.	„	20. II.	♂0.	„ 163;	„ 207
503.	850 m.	12. III.	♀2.	„ 162;	„ 155
199.	Serui.	19. II.	♀0.	„ 155;	„ 202
2932.	Japen.	13. VII.	♀0.	„ 161;	„ —

Drei ausgefärbte ♂♂, ein jüngeres ♂ und zwei ausgefärbte ♀♀ befinden sich in der Sammlung. Das jüngere ♂ hat die roten Flanken mit Blau gemischt und das Rot dieser Flanken düsterer.

Eos fuscata incondita A. B. Meyer.

Gesammelt von : A. B. Meyer, Beccari, Bruijn, Stein.

512.	850 m.	12. III.	♂1.	Fl. 178 ;	Gew. — ;	Flügelmauser
518.	850 „	12. III.	♂1.	„ 165 ;	„ —	„
515.	850 „	12. III.	♀0.	„ 164 ;	„ 75	
514.	850 „	12. III.	♀0.	„ 157 ;	„ —	
517.	850 „	12. III.	♀0.	„ 159 ;	„ —	

Die Art *Eos fuscata* scheint auf den ersten Blick ganz klar und leicht zu behandeln ; aber bei näherer Untersuchung verschwindet diese Klarheit, und es ist schwer zu entscheiden, ob alle Stücke einer und derselben Form angehören, oder ob sie in mehrere lokale Subspecies geteilt werden müssen. Dr. A. B. Meyer (*Sitzungsb. K. Akad. Wiss. Wien*, Bd. lxx, p. 236, 1874) und Salvadori (*Orn. Pap.* i, p. 265, 1880) haben schon gesagt, dass die Exemplare von Jobi grösser wären und lebhaftere Färbung hätten. Ferner hat Dr. A. B. Meyer, in *Zeitschr. ges. Ornithologie*, iii, p. 6, Tab. I, Fig. 2, den Namen *Eos incondita* den Exemplaren aus S.O.-Neuguinea und Jobi gegeben. Dr. Hartert hat diesen Namen subspecifisch angenommen in seiner Neu-Guinea Arbeit über die Sammlung von Dr. Ernst Mayr (NOV. ZOOL. vol. xxxvi, pp. 27–128, 1930), aber in der gemeinsamen Arbeit " Notes on Papuan Birds " (NOV. ZOOL. vol. viii, p. 65, 1901) stimmte er damals mit mir überein, dass keine Formen abgetrennt werden könnten. Die erste Schwierigkeit stellt sich sofort ein mit dem Namen *Eos fuscata* : Blyth hat einen fundortslosen Vogel beschrieben und daher ist es nicht möglich zu sagen, welches Wohngebiet die typische Form haben sollte, wenn man die Art definitiv in Unterarten teilt. Ich werde aber, glaube ich, recht handeln, wenn ich das zweite Zitat nur in Betracht ziehe und G. R. Gray's Fundort " Dorey " = " Manokwari " als typische Localität annehme. Ich habe bei der Bearbeitung von Stein's Serien aus Jappen (Jobi) und Manokwari im ganzen 88 Stücke verglichen und Flügelmaasse geprüft, 76 aus dem Tring Museum, und 12 von Stein. Sie stammen aus den folgenden Fundorten :

Dorey—Manokwari, 3 ♂♂, 5 ♀♀, 1 ? ; Arfak, 1 ♂, 1 ? ; Andai, 1 ♂ ; Sorong, 1 ♀ ; Hfaar, Humboldt Bay, 1 ♂, 1 ♀ ; Cyclops Mts., 1 ♂, 1 ♀ ; Simbang, 1 ♂, 1 ♀ ; Constantin-Hafen, 1 ♀, 1 ? ; Fried. Wilhelms-Hafen, 1 ♀ ; Stephansort, 3 ♂♂, 1 ♀ ; Upper Setekwa River, 1 ♂ ; Snow Mts., 4 ♂♂, 2 ♀♀ ; Mt. Goliath, 7 ♂♂, 2 ♀♀ ; British New Guinea (Anthony), 1 ♂, 1 ♀ ; Nieura, British New Guinea, 1 ? ; Mt. Cameron, Queen Stanley Range, 4 ♂♂, 2 ♀♀ ; Owgarra, Angabunga River, 1 ♂, 1 ♀ ; Brown River, British New Guinea, 1 ? ; Avera, Aroa River, 3 ♂♂, 2 ♀♀ ; Bihagi, Mambare River, 1 ♂, 2 ♀♀ ; Kumusi River, 3 ♂♂, 3 ♀♀ ; Hydrographer Mts. 3 ♂♂, 4 ♀♀ ; Jobi Island, 3 ♂♂, 4 ♀♀ ; Ron Island, 5 ♂♂.

Die Flügelmaasse sind wie folgt : 46 ♂♂, 142–167 mm. ; 36 ♀♀, 140–165 mm. ; 5 ? 145–167 mm. Das eine Stück von 144 stammt aus Arfak, das zweite vom Kumusi River ; das eine Exemplar mit Flügel 167 ist aus Jobi, das andere vom Brown River. Diese Maasse beweisen, glaube ich, dass die Grösse zu stark variiert, um als gültiges Rassenmerkmal gebraucht zu werden, aber zusammen mit der Färbung können wir zwei Lokalrassen aufstellen :

Eos fuscata fuscata : Berau Halbinsel ; düsterer, Flügel 140–152 mm.

Eos fuscata incondita : Übriges Neuguinea und Inseln der Geelvinkbai, leuchtender gefärbt, Flügel 144–167 mm.

1. *Eos fuscata fuscata* Blyth.

Eos fuscata Blyth, Proc. As. Soc. Bengal. 1858, p. 279. Hab. ?

Von der typischen Rasse hat Dr. Stein 7 Stück aus Manokwari—Dorey geschickt. Davon sind 5 rot und 2 gelb gezeichnet; die jungen, sowie die alten Exemplare zeigen deutlich die düstere Färbung, besonders auf Kopf und Rücken. Ein ♂, 2 ♀♀ rot und das gelbe ♀ sind völlig ausgefärbt. ♂♂ 142, 145–152 mm.; ♀♀ 140, 142, 143, 150 mm. Fundort Manokwari—Dorey, 10.–13. Febr. 1931.

2. *Eos fuscata incondita* Meyer.

Eos incondita A. B. Meyer, *Zeitschr. ges. Ornith.* iii, p. 6, T. 1 (1886—S.O.-Neuguinea und Jobi).

In der Sammlung befinden sich 5 Exemplare, 3 ausgefärbte und 2 jüngere Stücke, alle von der roten Phase. Alle fünf Bälge zeigen die leuchtenden Farben und durchschnittlich grössere Flügelmaasse der Subspecies.

Trichoglossus haematodus haematodus (Linn.).

Psittacus haematodus (abbr.) Linnaeus, *Mantissa Plantarum*, p. 524 (1771—Amboina).

Gesammelt von: v. Rosenberg, A. B. Meyer, Beccari, Bruijn, Stein.

232.	Serui.	21. II.	♂0.	Fl. 145;	Gew. 133
193.	„	18. II.	♀3.	„ 143;	„ 146
502.	850 m.	12. III.	♀0.	„ 139;	„ 50

Mageninhalt: Viele kleine weisse Larven (193).

Spizaetus gurneyi (Gray).

Gesammelt von: Beccari, Stein.

2994. 14. VII. ♀0. Fl. 504

Haliastur indus girrenera (Vieill.).

Gesammelt von: Stein.

653. K. Baroe. 22. III. ♂1. Fl. 344; Gew. 365

Henicopernis longicauda fraterculus subsp. nov.

Gesammelt von: Stein.

298.	Serui.	25. II.	♂1.	Fl. 382;	Gew. 447;	Flügelmauser
652.	„	24. III.	♀.	„ 356;	„ — ;	"juv. ?"

298. "Wachshaut hellblaugrau, Schnabel bleifarben, Firste und Spitze des Oberschnabels braunschwarz, Füsse weisslich gelbgrün."

Das von Stein als ♀ juv. bezeichnete Exemplar unterscheidet sich vom zweiten offenbar adultus dadurch, dass die grauen Querbänder heller und die weissen Federsäume am Oberkopf und Nacken breiter sind. Ebenso gefärbt ist ein anscheinend junges ♂ von der Bismarck-Ebene, allerdings hat dieses Stück eine Flügellänge von 375 mm., ist also bedeutend grösser als der junge Vogel aus Japen. Ebenso übertreffen alle Vögel vom Festland Neuguineas das adulte ♂ von Japen; bei einer Serie von Deutsch-Neuguinea und vom Weyland-Gebirge messen wir:

♂ ad. 419; ♂ juv. 375; ♀ 419, 421, 422, 438 mm.

Wir glauben daher, eine Japen-Rasse abtrennen zu dürfen, die sich durch kleinen Wuchs auszeichnet.

Typus : ♂ ad. Serui, Japen, 25 II., No. 298.
Verbreitung : Japen.
Mageninhalt : 1 Eidechse und grosse Heuschrecken (298).

Baza subcristata reinwartii (Müll. & Schleg.).

Gesammelt von : Stein.

301.	Serui.	25. II.	♂1.	Fl. 312 ;	Gew. 286 ;	ad.
644.	K. Baroe.	25. III.	♀0.	„ 298 ;	„ 205 ;	juv.

Querbänderung nicht so breit und deutlich wie bei einem Stück von Stephansort. " Füsse weissgelb, Wachshaut und Oberschnabel schwarzgrau, Unterschnabel blaugrau."

Falco peregrinus ernesti Sharpe.

Gesammelt von : Bruijn.

Falco severus papuanus Meyer & Wigl.

Gesammelt von : Bruijn.

Accipiter novaehollandiae leucosomus (Sharpe).

Gesammelt von : Beccari, Bruijn, Stein.

628.	K. Baroe.	23. III.	♂1.	Fl. 209 ;	Gew. 204 ;	ad. ;	" Wachshaut und Füsse *grün*gelb "
272.	Serui.	23. II.	♂0.	„ 208 ;	„ 225 ;	I. Ju. Kl.	" Wachshaut gelb, Schnabel schwarz Füsse gelblich "
650.	„	28. III.	♀1.	„ 233 ;	„ 300 ;	juv.	mit einzelnen ad. Federn
608.	K. Baroe.	21. III.	♀0.	„ 237 ;	„ 300 ;	I. Ju. Kl.	
241.	Serui.	22. II.	♀0.	„ 242 ;	„ 350	„	" Wachshaut, Füsse gelblich "
242.	„	22. II.	♀0.	„ 241 ;	„ 350 ;	juv.	" Wachshaut, Füsse gelb, Schnabel schwarz ".
271.	„	26. II.	♀ ?	„ 234 ;	„ 375 ;	„	
618.	K. Baroe.	22. III.	♀0.	„ 242 ;	„ —	„	" Wachshaut, Füsse gelb "

Von Japen scheinen weisse Individuen nicht bekannt geworden zu sein. Die jungen ♀♀ variieren sehr, die breiten Querbänder sind bald schwarzbraun, bald mehr rotbraun (Numfor 955). Die Grundfarbe ist bald reinweiss, bald gelblichbraun. Die beiden ad. sind auch nicht ganz gleich : 606 ist deutlicher gebändert als 241.

Accipiter meyerianus (Sharpe).

Astur meyerianus Sharpe, *Journ. Linn. Soc. Lond.* vol. xiii, p. 458, pl. 22 (1877—Jobi).

Gesammelt von : A. B. Meyer.

Seitdem A. B. Meyer den Typus dieser Art, ein ausgefärbtes altes ♂, bei Ansus sammelte (vgl. Stresemann, *J. f. O.* 1924, p. 442), ist dieser interessante Vogel nie wieder auf Japen angetroffen worden.

Accipiter poliocephalus Gray.

Gesammelt von : Bruijn, Bernstein, Stein.

621.	23. III.	♂1.	Fl. 195 ;	Gew. 178 ;	juv.	" Wachshaut, Füsse rot-gelb "
311.	25. II.	♀1.	„ 224 ;	„ 254 ;	ad.	" Wachshaut, Füsse gelb-rot "
568.	14. III.	♀1.	„ 217 ;	„ —	„	Flügelmauser
275.	24. II.	♀1.	„ 208 ;	„ 225 ;	juv.	" Wachshaut, Füsse rot, Schnabel schwarz "
645.	28. III.	♀0.	„ 223,5 ;	„ 195 ;	„	" Wachshaut, Füsse rot-gelb "
646.	27. III.	♀0.	„ 214 ;	„ 205 ;	„	" Wachshaut, Füsse gelb-grün "

Accipiter cirrhocephalus papuanus Rothsch. & Hart.

Gesammelt von : A. B. Meyer.

Egretta garzetta nigripes (Temm.).

Gesammelt von : v. Rosenberg ?

Butorides striatus moluccarum Hartert.

Gesammelt von : Bruijn, Stein.

306. Serui. 25. II. ♀1. Fl. 178

Siehe unter Waigeu !

Ptilinopus superbus superbus (Temm.).

Gesammelt von : v. Rosenberg, Beccari, Doherty, Stein.

582.	800 m.	15. III.	♂3.	Fl. 125 ;	Gew.	—	
278.	Serui.	24. II.	♂2.	„ 128,5 ;	„	121	
353.	450 m.	3. III.	♂2.	„ 130 ;	„	124	
504.	850 „	12. III.	♀3.	„ 121,5 ;	„	133	
500.	850 „	12. III.	♀3.	„ 135 ;	„	—	
403.	450 „	3. III.	♀2.	„ 125 ;	„	104,7	
584.	850 „	15. III.	♀1.	„ 124,5 ;	„	94 ;	Flügelmauser

Siehe unter Waigeu !

Ptilinopus coronulatus geminus Salvad.

Ptilinopus geminus Salvadori, *Ann. Mus. Civ. Gen.* vol. vii, p. 787 (1875—Jobi).

Gesammelt von : v. Rosenberg, Bruijn, Beccari, Guillemard, Doherty, Stein.

238.	Serui.	22. II.	♂2.	Fl. 106,5 ;	Gew.	77	
377.	450 m.	4. III.	♂1.	„ 108 ;	„	77,2	
490.	450 m.	10. III.	♂1.	„ 110,5 ;	„	77	
259.	Serui.	23. II.	♂1.	„ 105 ;	„	72	
588.	850 m.	15. III.	♂1.	„ 108 ;	„	—	
206.	Serui.	19. II.	♀2.	„ 100 ;	„	68	
229.	„	20. II.	♀0.	„ 103 ;	„	61 ;	Flügelmauser.

Bewohnt auch die Küste Neu-Guineas zwischen Humboldt-Bai und Südspitze der Geelvinkbai.

Mageninhalt : 1 Beere, Kerne von Pfefferkorngrösse im Darmtrakt (229).

Ptilinopus iozonus jobiensis Schlegel.

Ptilinopus humeralis jobiensis Schlegel, *Mus. Pays-Bas*, vol. iv. *Columbae*, p. 16 (1873—Jobi).

Gesammelt von : v. Rosenberg, Beccari, Bruijn, Doherty, Stein.

267.	Serui.	24. II.	♂2.	Fl. 115 ;	Gew.	131	
303.	„	25. II.	♂2.	„ 110,5 ;	„	91	
257.	„	23. II.	♂1.	„ 116 ;	„	128	
539.	850 m.	12. III.	♂1.	„ 116 ;	„	—	Flügelmauser

Übereinstimmend mit Vögeln vom Mamberano und Sepik.

Mageninhalt : Fruchtfleisch ohne Samen (267), Magen leer (303), Früchte mit linsenartigen Samen, auch im Trakt (257).

Ptilinopus aurantiifrons Gray.

Gesammelt von : A. B. Meyer, Beccari, Doherty.

Ptilinopus perlatus perlatus (Temm.).

Gesammelt von : v. Rosenberg, Doherty, Stein.

244. Serui. 22. II. ♂2. Fl. 161 ; Gew. 263

Von van Heurn am unteren Mamberano gesammelt, vergl. Hartert, *Nova Guinea*, xv, *Zool.* p. 443 (1932).

Mageninhalt : Fruchtfleisch ohne Kerne.

Ptilinopus miqueli Schlegel.

Ptilinopus miqueli Schlegel, *Nederl. Tijdschr. Dierk.* vol. iv, p. 22 (1871—Miosnom, Jobi).

Gesammelt von : v. Rosenberg, Bruijn, Doherty, Stein.

365. 450 m. 4. III. ♂2. Fl. 128 ; Gew. 127,2
486. 450 „ 10. III. ♂2. „ 122,5 ; „ 128

Diese Art, die auf Japen und Miosnom beschränkt ist, ist der *rivolii*-Gruppe sehr nahe verwandt, hat sich aber so weit differenziert, dass man sie wohl als Art behandeln muss.

Ptilinopus musschenbroekii Schlegel.

Ptilopus musschenbroekii Schlegel, *Nederl. Tijdschr. Dierk.* vol. iv, p. 23 (1871—Numfor, Miosnom, Soek).

Gesammelt von : Doherty.

Siehe unter Numfor.

Ptilinopus pectoralis salvadorii Rothsch.

Ptilopus salvadorii Rothschild, *Bull. Brit. Orn. Club*, vol. iii, p. 10 (1892—Jobi).

Gesammelt von : Bruijn, Stein.

412. 6. III. ♂1. Fl. 114 ; Gew. 121

Diese Rasse ist nicht auf Japen beschränkt, sondern scheint an der gegenüberliegenden Küste von Neuguinea eine weitere Verbreitung zu besitzen. E. Mayr sammelte sie an der Humboldt-Bai.

Megaloprepia magnifica septentrionalis A. B. Meyer.

Gesammelt von : v. Rosenberg, Bruijn, Doherty, Stein.

579. 850 m. 14. III. ♂2. Fl. 173,5 ; Gew. 153
260. Serui. 22. II. ♂2. „ 166 ; „ 179
280. „ 25. II. ♂2. „ 166 ; „ 199,5
299. „ 25. II. ♂1. „ 167 ; „ 209 ; Flügelmauser

Unterschwanzdecken nur schwach grünlich.

Ducula zoeae (Desmarest).

Gesammelt von : v. Rosenberg, Beccari, Bruijn, Doherty, Stein.

270. Serui. 24. II. ♂2. Fl. 217 ; Gew. 625
485. 450 m. 10. III. ♂2. „ 217 ; „ —
276. Serui. 24. II. ♂2. „ 223 ; „ 575

Unterschwanzdecken mit schmäleren hellen Säumen als bei Vögeln vom Festland.

Mageninhalt: Fruchtschalen (270).

Ducula rufigaster uropygialis subsp. nov.

Gesammelt von: v. Rosenberg, Beccari, Bruijn, Doherty, Stein.

293. Serui. 24. II. ♂2. Fl. 191; Gew. 400

Schon Salvadori, *Orn. Pap.* iii, p. 99, hat die Unterschiede klar erkannt, welche die auf Japen lebenden Vögel gegenüber der Nominatform auszeichnen. Sie bestehen darin, dass der Bürzel und die Oberschwanzdecken auf Japen viel ausgesprochener rötlich, weniger dunkelblauviolett schillern und dass Oberkopf und Kopfseiten auf Japen mehr ins Rostfarbene, bei der Nominatform mehr ins Graue übergehen. Noch ausgeprägter zeigen die Unterschiede der neuen Rasse diejenigen Bälge, welche uns vom Stromgebiet des Sepik und Ramu, sowie von der Astrolabebai vorliegen. Wir wählen daher zum Typus ein Stück des Berliner Museums: ♂ Ramu, 30. Februar 1898, Tappenbeck leg. Nr. 496.

Die Verbreitung der beiden Rassen scheint folgende zu sein:

D. r. rufiventris (Salvadori): Waigeu, Salawati, Misol, Vogelkopf von Neuguinea, von dort aus anscheinend längs der Südküste bis zum Fly-River.

D. r. uropygialis (Stres. & Pal.): Japen und vermutlich Nordküste von Neuguinea vom Mamberano bis mindestens zur Astrolabebai.

Ducula pinon jobiensis (Schleg.).

Carpophaga pinon jobiensis Schlegel, *Nederl. Tijdschr. Dierk.* vol. iv, p. 26 (1871—Jobi).
Carpophaga westermanni Schlegel, *Nederl. Tijdschr. Dierk.* vol. iv, p. 27 (1871—Jobi).

Gesammelt von: v. Rosenberg, Bruijn, Doherty, Stein.

243.	Serui.	22. II.	♂2.	Fl. 270;	Gew. 875
224.	„	19. II.	♀2.	„ 265;	„ 850
227.	„	19. II.	♀0.	„ 263,5;	„ 725

Myristicivora spilorrhoa spilorrhoa (Gray).

Gesammelt von: Beccari, Bruijn.

Gymnophaps albertisi albertisi Salvad.

Gesammelt von: Guillemard, Doherty, Stein.

489.	450 m.	10. III.	♂2.	Fl. 193;	Gew. —	Flügelmauser
480.	450 „	9. III.	♂1.	„ 201;	„ 215	
488.	450 „	10. III.	♀0.	„ 195;	„ —	

489 und 480 (♂) haben (im Balg) die nackte Augenumgebung rot, den Zügel gelb. 488 (♀) hat beide Regionen gelb. [17 ♂♂ und ♀♀ aus Batjan, Juni 1931, G. Heinrich leg., haben im Balg sowohl Augengegend als auch Zügel rot; sie sind auch etwas grösser und die ♀♀ haben etwas dunklere Brust: *G. a. exsul* Hartert.]

Mageninhalt: Fruchtkerne von Kirschkerngrösse (480).

Reinwardtoena reinwardtsi griseotincta Hart.

Gesammelt von: Doherty, Stein.

487.	450 m.	10. III.	♂2.	Fl. 229;	Gew. 250
261.	Serui.	23. II.	♂2.	„ 232,5;	„ 280
289.	„	24. II.	♀.	„ 242;	„ 275
636.	K. Baroe.	24. III.	♀0.	„ 213;	„ 180; juv.; Gefiedermauser

I. Ju. Kl. (636): Unterseite erdbraun, Oberseite heller, Flügel und Schwanz schwarzbraun, Schnabel am Balg dunkel.

Macropygia amboinensis kerstingi Rchw.

Gesammelt von: A. B. Meyer, Beccari, Bruijn, Stein.

361.	450 m.	4. III.	♂1.	Fl. 159;	Gew. 145
407.	450 „	5. III.	♂1.	„ 162,5;	„ 148; juv.
578.	850 „	14. III.	♀2.	„ 154;	„ —
184.	Serui.	7. II.	♀0.	„ 155;	„ 134; Flügelmauser

Siehe unter Waigeu.

Macropygia nigrirostris Salvad.

Gesammelt von: Stein.

410.	Serui.	19. II.	♂2.	Fl. 142,5;	Gew. 89	
218.	„	20. II.	♂2.	„ 143;	„ 95	
286.	„	24. II.	♂2.	„ 140,5;	„ 79;	am Nacken noch einige Ju. Kl. federn.
194.	„	18. II.	♂1.	„ 138,5;	„ 85;	am Kopf und Nacken noch einige Jugendkleidfedern.
256.	„	23. II.	♀3.	„ 142;	„ 100,3	
321.	„	26. II.	♀2.	„ 142;	„ 92	
354.	450 m.	3. III.	♀2.	„ 140;	„ 91	
318.	Serui.	26. II.	♀1.	„ 139;	„ 95	
211.	„	19. II.	♀0.	„ 141;	„ 87	

Mageninhalt: Samen von Pfefferkorngrösse, keine im Darmkanal (218), Fruchtkern, ca. 3 cm. Durchmesser (286), winzige Samen (194), Steinchen (354).

Gallicolumba rufigula rufigula (Jacq. & Puch.).

Gesammelt von: v. Rosenberg, Bruijn.

Gallicolumba jobiensis (A. B. Meyer).

Gesammelt von: A. B. Meyer, Bruijn.

Chalcophaps stephani stephani Reichenbach.

Gesammelt von: Bruijn, Stein.

296. 25. II. Serui. ♀0. Fl. 133; Gew. 109; Teilweises I. Ju. Kl.; Flügelmauser

Henicophaps albifrons Gray.

Gesammelt von: Bruijn, Stein.

344. Serui. 26. II. ♀1. Fl. 183; Gew. 250; Flügelmauser

Stirn nicht reinweiss, sondern bräunlich.

Caloenas nicobarica nicobarica (L.).

Gesammelt von: v. Rosenberg, Beccari, Bruijn, Guillemard, Doherty.

Goura victoria victoria (Fraser).

Gesammelt von : v. Rosenberg, Beccari, Guillemard, Doherty.

Tadorna radjah radjah (Garnot).

Gesammelt von : Guillemard.

Esacus magnirostris (Vieill.).

Gesammelt von : A. B. Meyer.

Charadrius dominicus fulvus Gm.

Gesammelt von : Stein.

239. Serui. 22. II. ♀1. Fl. 162 ; Gew. 108

Charadrius dubius curonicus Gm.

Gesammelt von : Stein.

651. Serui. 22. III. ♀. Fl. 119 ; Gew. 40,2

Dieses Stück gehört sicher zur palaearktischen Rasse *curonicus* und nicht zu der auf Neuguinea brütenden Rasse ("*jerdoni*"). Ein sicherer Nachweis von *C. d. curonicus* schien bisher für das papuanische Gebiet zu fehlen.

Actitis hypoleucos (L.).

Gesammelt von : Beccari.

Numenius phaeopus variegatus (Scop.).

Gesammelt von : Beccari, Bruijn.

Sterna bergii cristata Stephens.

Gesammelt von : Bruijn.

Megapodius affinis affinis A. B. Meyer.

Megapodius affinis var. *johiensis* Oustalet, *Ann. Sci. Nat.* 11, p. 95 (1881—Jobi).

Gesammelt von : Beccari, Bruijn, Doherty.

Obwohl Herr Stein die beiden von früheren Reisenden auf Japen gesammelten *Megapodius* Arten nicht erbeutet hat, seien sie doch zu einigen systematischen Erörterungen herangezogen. Nach dem Zeugnis von Salvadori sind zwei *Megapodius* Arten auf Japen angetroffen worden, nämlich *M. geelvinkianus* durch Meyer und Beccari und *M. affinis* durch Beccari, während das Tring Museum aus Japen 10 alte Exemplare von *M. affinis* besitzt, gesammelt von Doherty und Bruijn, aber von dieser Insel keinen *M. geelvinkianus* erhielt. Wie sehen keinen Grund, daran zu zweifeln, dass die Bestimmung Salvadoris richtig gewesen sei und müssen uns mit der Tatsache abfinden, dass Japen wirklich zwei *Megapodius* Arten beherbergt, eine im wesentlichen schwarz gefärbte und eine auf Kopf, Rücken und Flügel braune und auf der Unterseite bräunlich graue. Es geht

also wohl nicht an, alle *Megapodius* Arten in einen Rassenkreis hineinzuzwingen, wie es neuerdings von Siebers (*Treubia* vii, *Suppl.* 1930, pp. 166–170) und von E. Mayr (*Mitt. Zool. Mus. Berlin*, xvii, 1931, p. 709) gesehehen ist, und wir ziehen es vor, anzunehmen, dass, wie bei *Talegallus*, so auch bei *Megapodius* mehrere Arten auf Neuguinea leben, die sich zwar im grossen und ganzen geographisch vertreten, aber doch im Grenzbezirk nebeneinander vorkommen. Wir unterscheiden daher :

1. *Megapodius freycinet.*

Verbreitung : Nordmolukken, westl. papuanische Inseln und kleine der Berau-Halbinsel nordoestlich vorgelagerte Inseln (wie Dorei-Hum), sowie die Inseln der Geelvinkbai.

Diese Gruppe gliedert sich in zwei Rassen :

(*a*) *M. freycinet freycinet* Quoy & Gaimard, Verbreitung : Das ganze Wohngebiet der Art ausser dem von *M. f. geelvinkianus* besiedelten Gebiet.

(*b*) *M. freycinet geelvinkianus* Meyer, Verbreitung : Inseln der Geelvinkbai : Numfor, Pulu Manem, Biak, Miosnom, Japen.

Die Verbreitung dieser Art erinnert einigermaassen an diejenige von *Ducula myristicivora*.

2. *Megapodius affinis.*

Verbreitung : Nordküste von Neuguinea zwischen Südrand der Geelvinkbai (Rubi) und Mambare-Fluss, sowie Japen. Vom Südrand der Geelvinkbai nach Süden verbreitet bis zum Südfuss des westlichen Schneegebirges (Utakwa-Fluss). Hier kommt *M. affinis* neben *M. reinwardt* (= *duperreyii*) vor ; vgl. Og.-Grant, *Ibis*, 1915, *Suppl.* p. 319.

Diese Gruppe gliedert sich in drei schwach unterschiedene Rassen :

(*a*) *M. affinis affinis* Meyer.

(*b*) *M. affinis decollatus* Oustalet.

(*c*) *M. affinis huonensis* Stres.

Vgl. Stresemann, *Arch. f. Naturgesch.* 1923, A. 8, pp. 90–91, und Hartert, NOVITATES ZOOLOGICAE, xxxvi, 1930, p. 127.

3. *Megapodius reinwardt.*

Verbreitung : Kleine Sundainseln von Lombok ostwärts, Inseln der Flores-See und der Banda-See, Kei-Inseln, im papuanischen Gebiet auf Salawati, Batanta, an der Küste der Berau-Halbinsel, auf den Aru-Inseln und an der ganzen Südküste Neuguineas bis zum S.O.-Kap und von da an der Nordküste westwärts mindestens bis zum Kumusi-Fluss. Diese Art lebt am Südhang des südwestlichen Schneegebirges stellenweise neben *M. affinis*, auf Salawati, Batanta, Sorong, dem Inselchen Dorei-Hum neben *M. freycinet*.

Megapodius freycinet geelvinkianus A. B. Meyer.

Gesammelt von : A. B. Meyer, Beccari.

Siehe unter *Megapodius affinis*.

Talegallus jobiensis jobiensis A. B. Meyer.

Talegallus jobiensis A. B. Meyer, *Sitzungsber. Akad. Wien*, 69, p. 74 (1874—Jobi).

Gesammelt von : A. B. Meyer, Beccari, Bruijn, Doherty, Stein.

657. 23. III. ♀. Fl. 276 ; Schw. 155 ; Gew. 1360
3007. 7. VII. ♂. „ 286_2 ; „ 170 ; „ — ; Iris schwarzbraun, Füsse mennigrot, Schnabel rotbraun, nackte Haut an Kopf und Hals mennigrot.

Die Rasse *T. j. jobiensis* scheint ausser auf Japen auch auf dem gegenüberliegenden Festland von der Mamberanomündung mindestens bis zur Humboldt-Bai verbreitet zu sein. Östlich davon lebt mindestens vom Sepik an bis zur S.O.-Spitze Neuguineas und von da ab an der Südküste bis zum Aroa-Fluss *T. jobiensis longicauda*, welche sich durch im Mittel etwas längeren Schwanz auszeichnet (3 Stücke im Zool. Mus. Berl. von Astrolabebai, Stefansort und Sepik haben Flügel-Schwanz : 287/181–297/197–295/178). Daneben kommen auf Neuguinea zwei andere sehr ähnliche *Talegallus* Arten vor, die diese im Raum nahezu, aber nicht völlig vertreten. Ihre Areale scheinen sich in den Grenzgebieten etwas zu überschneiden. Es sind :

1. *Talegallus cuvieri* Lesson, Verbreitung : Berau-Halbinsel, Salawati, Misol, ostwärts an der Südküste von Neuguinea etwa bis zum Mimikafluss, wo gleichzeitig *T. fuscirostris* vorkommt (vgl. Og.-Grant, *Ibis*, 1915, *Suppl.* p. 322), an der Nordküste wahrscheinlich nur bis zur Westküste der Geelvinkbai.

2. *Talegallus fuscirostris* Salvadori, Verbreitung : Aru-Inseln, Südküste von Neuguinea zwischen Port Moresby und Etna-Bai und längs der Südküste der Geelvinkbai (Rubi, Wanggar). An der Südküste Neuguineas neben *T. longicauda* und am Südhang des westl. Schneegebirges neben *T. cuvieri*.

Es ergibt sich also aus dem Vorhergesagten, dass alle 3 Arten die Geelvinkbai erreichen und zwar *T. cuvieri* von Westen her, *T. fuscirostris* von Süden her und *T. jobiensis* von Osten her.

Aepypodius arfakianus Salvadori.

Gesammelt von : Doherty, der ein Exemplar in Kariri auf Japen kaufte (Nov. Zool. viii, 1901, p. 140).

Casuarius unappendiculatus occipitalis Salvadori.

Casuarius occipitalis Salvadori, *Ann. Mus. Civ. Genova*, vii, p. 718 (1875—Jobi).
Casuarius laglaizei Oustalet, *Bull. Soc. Philom.* (8), v, No. 9, pp. 1–3 (1893—Jobi).

Gesammelt von : Beccari, Laglaize.

TUNGA BONDARI, EINE NEUE ART DER SANDFLÖHE.

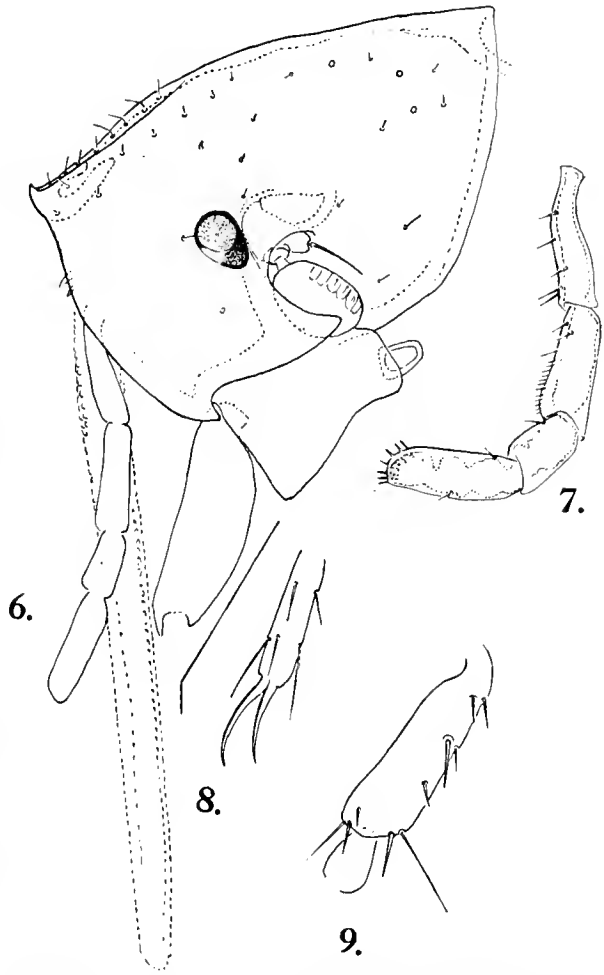
VON DR. J. WAGNER (BELGRAD).

(Mit 4 Figuren in Text.)

VON den 5 bis jetzt beschriebenen Sandflöhen werden zwei chinesische Arten: *caecigena* J. et R. (1921) von Ning-po und *lagrangei* Roub. (1925) von Schanghai, sich wahrscheinlich als eine und dieselbe Art erweisen, da die beiden Arten auf den Ohren der Ratte in den fast naheliegenden Gegenden gefunden wurden. Die Heimat drei anderer Arten (*penetrans* L., *caecata* End. und *travassosi* P. et Dr.) ist Süd-Amerika. Mit Ausnahme der *T. penetrans* sind von allen übrigen Arten nur schwangere Weibchen, mit aufgequollenem Abdomen, bekannt. Ebenso wird auch die weiter unten beschriebene neue Art auf Grund von Weibchen festgestellt, die Dr. G. Bondar (X. 1931) auf der Bauchseite einer jungen *Tamandua tetradactyla* gefunden hat. Dieser Ameisenbär wurde auf dem Markt in Bahia gekauft, und die Vermutung liegt nahe, dass das Tier in Brasilien unweit von Bahia gefangen war.

♀. Wie bei *T. caecata* sind der Thorax und der Kopf volkommen im aufgetriebenen Hinterleib verborgen. Bei der nahestehenden Art, *T. travassosi*, bleibt der Vorderkörper von der Seite gut bemerkbar. Im Gegensatz zu der *T. caecata* und der *T. travassosi* sind die Augen bei *T. bondari* voll entwickelt und pigmentiert, doch sind sie bedeutend kleiner, als die der *T. penetrans*: die Länge des pigmentierten Feldes, welches auf den aufgehellten Präparaten sichtbar ist, ist zweimal geringer, als der kürzeste Abstand vom Auge bis zum Frontalrande des Kopfes; dagegen sind diese Länge und dieser Abstand bei *T. penetrans* beinahe gleich gross. Die Form des Kopfes von *bondari* ist derjenigen von *penetrans* und *travassosi* sehr ähnlich, unterscheidet sich aber scharf von der der *caecata*. Bei der letztgenannten Art ist der Abstand zwischen dem Hinterende des Genallappens und der Basis des postoralen Lappens des Oralrandes zum mindesten dreimal, bei der *bondari* aber weniger als zweimal kürzer, als der Abstand zwischen dem letzten Lappen und dem Gipfel der Frontaltuberkel. Der Genallappen ragt bei *bondari* bedeutend nach hinten hinaus, einen Teil der Fühlergrube bedeckend; bei *penetrans* (und bei *caecigena*) ist dieser Vorsprung sehr schwach; wie stark er bei *travassosi* entwickelt ist, lässt sich aus Pinto's und Dreyfus's Beschreibung und Abbildung nicht ersehen. Die praeorale innere Chitinverdickung ist scharf ausgeprägt. Der Rüssel bei *bondari* ist unvergleichlich viel länger als bei *penetrans*, *caecata* und *caecigena*; er ist dreimal so lang als die Vorderhüfte und fast zweimal so lang als der Maxillartaster. Das 1. und das 4. Glied des Maxillartasters sind beinahe gleichlang, die Länge des 2. ist etwas kleiner und die des 3. fast halb so gross. Diese Verhältnisse bringen die *T. bondari* der *T. caecata* nahe; bei *travassosi*, nach Pinto's Abbildung zu urteilen, ist das 3. Glied nur wenig kürzer als das 4.; bei *caecigena* ist das 4. Glied fast doppelt so lang als das 2.; bei *penetrans* ist das 4. Glied kürzer als das 2. und nicht länger als das 3.; ausserdem, zum Unterschied von *penetrans*, bilden die wenigen Borsten auf der äusseren Oberfläche des 2. Tastergliedes bei *bondari* keine regelmässige Längsreihe. Das letzte Tasterglied ist bei *bondari* am Ende

assymetrisch abgestumpft und trägt an seinem Ende ca. 7 Sinnestifte. Wie bei *caecata* verschwinden die Beine beim Einziehen des Thorax in den wachsenden Hinterleib, von den hinteren angefangen. Bei keinem von 15 von mir untersuchten Exemplaren waren die Hinterbeine voll erhalten und nur bei einigen waren die Vorderbeine und manchmal auch die Mittelbeine unversehrt geblieben. Dabei habe ich bemerkt, dass je grösser das Exemplar ist, d.h. je mehr der Hinterleib aufgetrieben ist, desto bedeutender ist das Verschwinden der Beine. Dieses Verschwinden ist von einer unregelmässigen Chitinisierung (?) von schwarzer Färbung an der Stellen begleitet, wo die Trennung des entsprechenden Gliedes oder auch eines Teils desselben unmittelbar ansetzt; es bildet sich demnach ein eigenartiger Stöpsel an der Trennstelle der Beinteile. Die Vorder- und Hinterhüften an der Vorderseite laufen in einen apikalen Zahn aus. An der Aussenseite der Hinterfemora ist eine laterale Borstenreihe vorhanden. Die Beborstung des 5. Fussgliedes und der Schienen der Vorder- und Mittelbeine ist bei *bondari* derjenigen der *penetrans* (und, wie es scheint, auch der *travassosi*) fast gleich. Am 5. Glied der Vorder- und Mittelfüssen sitzen 2 Paare schwacher, doch langer, Seitenborsten.



Tunga bondari sp. n., o.—Fig. 6.—Kopf und Prosternum; Fig. 7.—Maxillartaster; Fig. 8.—Letztes Glied des Vorderfusses; Fig. 9.—Vorderschiene.

ON SOME NEW *EUPTEROTIDAE*.

By LORD ROTHSCHILD, Ph.D., F.R.S.

1. **Cotana eichhorni** sp. nov.

♀. This is totally unlike any other ♀ *Cotana*.

Legs orange yellow, tarsi black; antennae black; head and thorax orange yellow; abdomen rufous orange, abdominal tuft rusty grey. Forewing orange yellow, a blind ocellate patch in basal half of forewing with broad black distal and smaller basal black patches and hairlike black ring; a transverse median black band, followed by a transverse very indistinct sooty shadow line; a submarginal nervular row of black shuttle-shaped streaks joined by blackish shadow bands. Hindwing orange yellow, basal half slightly diaphanous, a strongly angulated sooty black median band followed by a less sharply bent sooty postmedian shadow band, a row of black submarginal shuttle-shaped nervular streaks joined by transverse sooty band.

Length of forewing 28 mm. Expanse 62 mm.

1 ♀ Edie Creek, west side of Herzog Mts., N.E. New Guinea, 6,400 feet, 1928 (A. F. Eichhorn).

2. **Cotana splendida** sp. nov.

♂. Pectus, legs, femora and tibiae dark golden buff, tarsi black; antennae, shafts black, pectinations greyish buff; head pale buff, vertex orange buff; patagia, basal half light ferruginous, outer half white; tegulae and thorax white; abdomen, basal $\frac{2}{3}$ of the segments buffy white, other $\frac{1}{3}$ ferruginous.

Forewing above, basal $\frac{2}{5}$ cream white, with irregular maroon stigmatic ring in the centre, a broad maroon band, beyond the basal white area, occupying $\frac{3}{5}$ of the outer area of the forewing and within which is a cloudlike yellow powdery band, the yellow coloured nervures divide this maroon band into 9 oblong patches, beyond the maroon band is a narrower lavender grey lunulated grey band divided into patches by 9 blackish maroon shuttle-shaped streaks, the rest of the wing is maroon grey divided by yellow nervures, fringe golden yellow. Hindwing bright golden yellow, basal and abdominal areas with thick buffish orange hairs; a postmedian transverse lunatedb and pale rusty maroon, beyond which is a row of blackish streaks.

Below both pairs of wings orange yellow with postmedian band of dark streaks on the nervures.

♀. Palpi black; tibiae and tarsi black; femora, pectus, head, and thorax bright orange rufous; antennae black; abdomen bright orange rufous, anal segment and tuft grey. Wings above, $\frac{3}{4}$ of costo-subcostal area and nervures orange rufous, $\frac{3}{4}$ of disc of wings sooty brown black, outer $\frac{1}{4}$ buffy orange, nervures in this outer $\frac{1}{4}$ broadly black. Below basal $\frac{2}{5}$ of both wings buffish rufous, some sooty patches in forewing, less distinct than in the middle area of both wings; the sooty discal areas both above and below in some lights have a magenta sheen.

Length of forewing ♂ 24 mm., ♀ 35–38 mm. Expanse ♂ 56 mm., ♀ 79–85 mm.

10 ♂♂, 2 ♀♀ Mt. Kunupi, Menoo Valley, Weyland Mts., 6,000 feet, Dutch New Guinea, Dec. 1920–Jan. 1921 (Messrs. Pratt).

3. **Cotana lunulata montium** subsp. nov.

♂. Differs from *C. l. alboserrata* B. Baker in the transverse line and streaks in the outer $\frac{1}{3}$ of wing being much more obsolete and in the hindwing being much deeper orange yellow.

♀. Differs more strikingly than the ♂ in the white spot in the basal $\frac{1}{3}$ of forewing being larger and rounder, the indentations in the submarginal white band of hindwing being much deeper and the line narrower and the anal tuft pale grey, NOT dark bluish grey.

A ♂ has ground colour of forewing almost the same as that of the hindwing, so I propose to call it ab. UNICOLOR.

9 ♂♂ (1 ab. *unicolor*), 1 ♀ Hydrographer Mts., British New Guinea, 2,500 feet, Feb. 1918 (Eichhorn Bros.), type ♂.

4. **Cotana rosseliana continentalis** subsp. nov.

♂. Differs from *C. r. rosseliana* in the ground colour in basal half of forewing being orange yellow as in hindwing, NOT dirty brown, and all the transverse markings of both pairs of wings being much more obsolete.

1 ♂ Hydrographer Mts., British New Guinea, 2,500 feet, Feb. 1918 (Eichhorn Bros.).

5. **Acrojana splendida** Rothsch.

Acrojana splendida Rothschild, *Nov. Zool.* vol. xxiv, p. 492, no. 71 (1917) (Wassaw district, ♀).

When I described *A. splendida* I only had the Type ♀, but I have since received a ♂ which at first sight from above bears no resemblance to the ♀, but the inner area of forewing below reveals at once the relationship.

♂. Legs, pectus and frons dark chocolate brown; antennae dark sooty slaty grey; vertex, thorax and abdomen sooty slate grey. Forewing above sooty slaty brown grey, a black spot near base of costa, a postmedian slanting darker transverse line from costa to inner margin, a narrow golden greenish transverse very oblique line edged with brown from before apex to postmedial line above vein 1. Hindwing above, costal $\frac{2}{5}$ bright rose pink, rest of wing sooty slaty grey, an antemedian darker line from abdominal margin to pink area, a median dark line from costal margin and touching edge of pink area to abdominal margin.

Forewing below grey brown, inner area sulphur yellow, median and postmedian darker lines from costa to edge of yellow area. Hindwing below grey brown, median and postmedian curved transverse darker bands. Fringe of both pairs of wings dark chocolate.

Length of forewing 50 mm. Expanse 110 mm.

1 ♂ Sierra Leone (J. W. Gaisford).

6. **Acrojana salmonea** sp. nov.

♂. Legs brown, tibiae strongly edged and clothed with scarlet hair, palpi orange, frons brown, antennae black brown washed with blue grey, vertex cinnamon, thorax and abdomen brown. Forewing wood-brown, a postbasal transverse row of 3 black spots ringed with grey, an antemedian serpentine

shadow line, a double line from the costa subapically to inner margin, outer portion slightly darker than wing, inner portion dark brown.

Hindwing above, costal $\frac{3}{5}$ salmon red, rest of wing two dark lines (outer shadowy) from abdominal margin $\frac{3}{4}$ across disc, a black spot on abdominal margin $\frac{1}{3}$ from base. Wings below cinnamon rufous brown crossed by two dusky indistinct transverse lines, inner area of forewing salmon colour.

♀. Legs and frons rufous, antennae fuscous, basal $\frac{1}{2}$ of shaft whitish grey, vertex, thorax and abdomen above cinnamon-brown.

Forewing above cinnamon-brown, basal $\frac{1}{3}$ and oblique median patch darker, a subbasal black spot on costa and 3 yellow ones in basal $\frac{1}{3}$ of wing, 2 curved postmedian transverse lines, the inner one deep brown, the outer one double, greenish yellow, black within.

Hindwing above, costal $\frac{2}{5}$ orange salmon, rest of wing cinnamon-brown, 3 transverse bands from abdominal margin across disc of wing, middle one most distinct on basal half, outer one with basal $\frac{2}{5}$ strongly marked with olive yellow.

Below both pairs of wings rufous orange crossed by a pair of brown lines, inner area of forewing paler.

Length of forewing ♂ 48 mm., ♀ 60 mm. Expanse ♂ 106 mm., ♀ 130 mm.

♂ Kumasi, Ashanti, Feb. 1915 (Alec) (ex coll. Fawcett); ♀ Bukuru, N. Nigeria.

7. **Acrojana simillima** sp. nov.

♂. Very similar to ♂ *A. splendida* Roths. above, only red area on hindwing is salmon-red, NOT rose pink, but below very distinct.

Underside of abdomen scarlet mixed with wood-brown; legs scarlet edged with wood-brown, tarsi black. Wings dark wood-brown crossed by 2 black brown lines, inner area of forewing orange-salmon, cell of forewing washed with orange-salmon.

Length of forewing 61 mm. Expanse 132 mm.

1 ♂ Sierra Leone (J. W. Gaisford).

8. **Paracydas biagi occidentalis** subsp. nov.

♂. Differs from *P. b. biagi* on forewing above by the presence of a large white subbasal spot, by a distinct median dark shadowy transverse line, by having a larger and more distinct white subapical spot and a distinct row of blue-grey wedge-shaped spots inside the postmedian line, instead of a broken indistinct blue-grey line. On the hindwing above it differs from *P. b. biagi* in the basal $\frac{3}{5}$ being much paler and more yellowish, in having a dark shadowy transverse antemedian line and in having more grey outside along postmedian line.

Below the grey anteapical spot is larger on the forewing, and it differs on the hindwing in the grey band along postmedian line.

4 ♂♂ Mt. Kunupi, Menoo Valley, Weyland Mts., 6,000 feet, Dutch New Guinea, 1921 (Messrs. Pratt).

SIPHONAPTERA COLLECTED BY MR. HARRY S. SWARTH AT ATLIN IN BRITISH COLUMBIA.

BY KARL JORDAN, PH.D., F.R.S.

(With 2 text-figures.)

THE Atlin Region where Mr. H. S. Swarth, in 1931, collected the fleas here recorded is in the extreme North-western corner of British Columbia, south of Yukon Territory and a few miles east of Alaska. Mr. Swarth informs me that the fauna and flora are those of the semi-arid interior (rainfall about 12 inches a year), the district having almost nothing in common with the humid coast belt 100 miles to the westward (rainfall about 100 inches a year). The collection, though very small, contains nevertheless specimens of two interesting species, one of them being new.

1. **Hoplopsyllus glacialis lynx** Baker 1904.

On *Lepus americanus macfarlanei*, 4.x., 1 ♂.

2. **Ceratophyllus caedens durus** Jord. 1929.

On *Sciurus hudsonius hudsonius*, 30.ix., and 13.x., 2 ♂♂, 1 ♀.

3. **Ceratophyllus eumolpi eumolpi** Roths. 1905.

On *Microtus drummondi*, 19.vii., 3 ♀♀.

4. **Ceratophyllus penicilliger** Grube 1852.

On *Peromyscus maniculatus borealis*, 10.viii., 2 ♀♀.——A pair of this common Palaearctic species is in the U.S. National Museum from Alaska; it is very badly preserved; the new record, therefore, is most welcome.

5. **Ceratophyllus querini** Roths. 1905.

On *Microtus drummondi*, 19.vii., 1 ♀.

6. **Ceratophyllus adustus** sp. nov. (text-figs. 10, 11).

A bird-flea parasitic on a mammal. Remarkable for the reduction in the number of bristles on the tibiae, the presence of only two antepygidial bristles, one long, the other short, and the short stylet.

♀. Proboscis one-sixth shorter than forecoxa, proportional length of segments 12, 7, 6, 8, 18. Bristles on head essentially as in *C. vagabunda* Bohem. 1865, 2 small bristles in front of the row of 3 eye bristles, on occiput one long median bristle not accompanied by a small one, subapical row very widely interrupted, consisting on each side of 5 bristles, 3 being dorsal, the fourth long and placed near the antennal groove, the fifth small, below the long one, along antennal groove about 10 small hairs. Bristles of antennal segment 11 longer than the club.

On pronotum a comb of 27 spines and a row of 11 bristles (on the two sides together); on mesonotum the posterior row contains 10 bristles, and on metanotum 12; mesopleura with 4 or 5 thin bristles; metepimerum with 7, of which one each is placed before and behind the stigma.

Bristles on abdominal tergites (the two sides together): II 9, 13, III 9, 12, VI 4, 9, VII 5, 10; on sternites: IV 3, 6, V 3, 7, VI 4, 6. Two antepygidial bristles, the lower one quite small.

In fore- and midtibiae the third dorsal pair of bristles short and thin, in hindtibia (text-fig. 10) the third and fourth dorsal bristles single, short and thin,

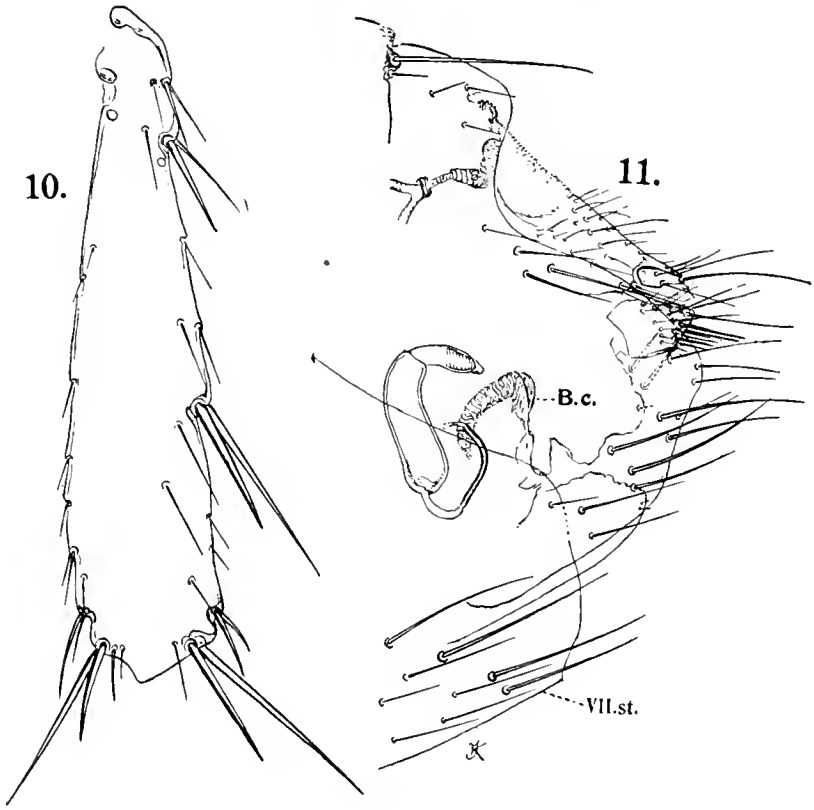


FIG. 10.—*Ceratophyllus adustus* ♀, hindtibia.
,, 11. ,, ,, ♀, end-segments.

and the inner bristles of the second and the postmedian pair shorter than usual. In hindtarsus no bristle reaches to apex of segment following, the longest of I extending just beyond second lateral pair of II, and that of II to subapical pair of III; small hairs on sole of V numerous, in hindtarsus about 7 between base and second pair of lateral bristles.

Modified Segments.—♀. Apical margin of sternite VII (text-fig. 11) rounded-truncate, slightly incurved above middle, 18 bristles on the two sides together. On each side of tergite VIII 2 or 3 bristles above stigma, 4 below it and 11 or 12 on the ventral and apical areas. Stylet a little over twice as long as broad. Bursa copulatrix not very distinct in the specimen; duct of spermatheca sur-

rounded with glandular tissue from bursa to about one-third, at a short distance from spermatheca dark and finally slightly widened and pale; blind duct, if present in the species, not visible in the specimen; spermatheca of the same type as in *C. vagabunda*, its head nearly three times as long as broad.

On *Erethizon epixanthum*, 3.ix., 1 ♀.

The Porcupine probably is the true host of this modified bird-flea, the peculiarities of the new species presumably being due to a change of host from Bird to Mammal. We have several instances of species of the mammal flea type being parasitic on birds; in these cases the change of host from Mammal to Bird has likewise affected the development of the bristles.

THE SIPHONAPTERA COLLECTED BY MR. J. L. C. MUSTERS IN NORWAY ON THE LEMMING.

By KARL JORDAN, Ph.D., F.R.S.

(With 2 text-figures.)

THE collection of fleas which forms the subject of this paper is a much-appreciated present from Mr. J. L. C. Musters, the mammalogist, who obtained the specimens himself at Surendalen, Nordmoor. The material represents no less than 6 species, and is in so far of particular interest as all the specimens were taken off one host, *Lemnus lemnus*, which seems to be a very hospitable animal. Only 2 out of the 6 species found can be considered to be normal parasites of the Lemming, 3 being fleas of mice and one of shrews. These mammals, no doubt, frequent the burrows of the Lemming and incidentally leave some fleas behind.

1. **Ceratophyllus penicilliger** Grube 1852.

2 ♂♂, 4 ♀♀.—A circumpolar species ; very frequent in Europe, but evidently not extending to the Mediterranean area.

2. **Ceratophyllus rectangulatus** Wahlgren 1903 (text-fig. 12).

2 ♂♂, 15 ♀♀.—The ♀ of this species has not yet been described, as far as I know, and I therefore give here a figure of the seventh abdominal sternite illustrating the variability of this segment in the series before me (text-fig. 12, *a*, *b*, *c*, *d*).——Joff published in 1927 a figure of the ♂-genitalia of a specimen from Transbaicalia under the name of *C. baikalensis*. This name has been sunk as a synonym by Wagner in *Katalog pal. Aphan.* 1930, p. 9. In Joff's figure, however, the proportions of exopodite F are 14 : 31, whereas in our specimens from Norway the proportions (length and apical width) are 11 : 31, F being much narrower than in Joff's figure. Joff's unique specimen, therefore, probably represents a Transbaicalian subspecies.

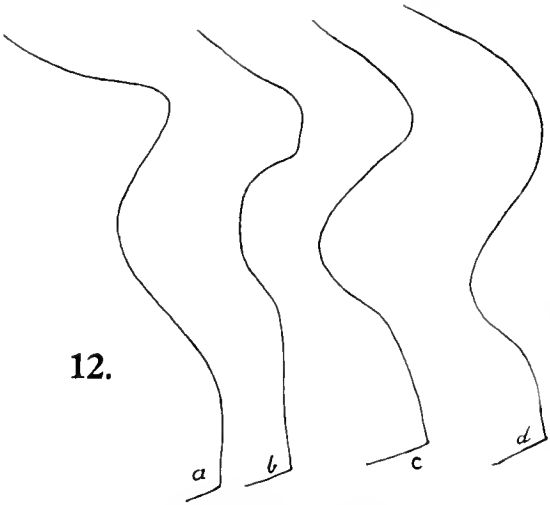


FIG. 12.—*Ceratophyllus rectangulatus* ♀.

3. **Ceratophyllus fasciatus** Bosc 1800.

1 ♀.—Occurrence on Lemming accidental.

4. **Leptopsylla silvatica** Meinert 1896 (text-fig. 13).

3 ♂♂, 5 ♀♀.—This series is especially welcome, as it enables me to supplement Meinert's description which was based on the ♀ only. N. C. Rothschild, to whom a specimen of *L. silvatica* had been lent for examination, came to the conclusion that *L. spectabilis* Roths. 1898 was the same as *L. silvatica*. The present Norwegian series belongs to a species which we have in the collection from Bulgaria, the High Tatra, Eastern Germany and Lapland. This wide distribution renders it fairly certain that Meinert's 2 ♀♀ from Jütland belong to the same species, the name of which therefore is *L. silvatica*. This *L. silvatica* is well distinguished from *L. spectabilis* by the ♂-genitalia, but I cannot find any difference between British and Continental ♀♀.

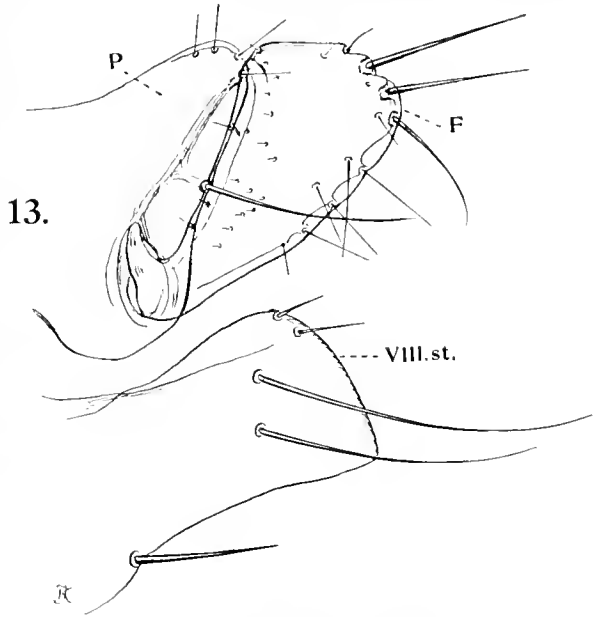


Fig. 13.—*Leptopsylla silvatica* ♂.

♂. Apical lobe of VIII. st. (text-fig. 13) broader and longer than in *L. spectabilis*, apically much more rounded, particularly dorsally, in front of this lobe 1 ventral bristle instead of 3 and this stout bristle placed halfway between the base and apex of the segment, on the lobe 2 long lateral bristles and above them at rounded upper angle 2 small ones. Process P of clasper as in *L. spectabilis*, but somewhat narrower; exopodite F gradually widened towards apex, not incurved on posterior side (which is often more convex than in our figure) and apically much narrower than in *L. spectabilis*, being much less than half as wide as long, at upper posterior angle a row of 3 long bristles as in *L. spectabilis*, but the bristles longer, the upper one the longest and strongest, below them down to middle of posterior margin or to below middle 5 to 8 thin bristles on out- and inside together, above the three long bristles one short marginal one. The postmedian ventral bristles of IX. st. much smaller than in *L. spectabilis*.

The fact that British ♀♀ are indistinguishable from non-British ones suggests that *L. spectabilis* and *L. silvatica* are geographical representatives of one species; a third subspecies probably would be *L. fallax* Roths. 1909 from the Alps.

5. **Leptopsylla bidentatus** Kolenati 1860.

1 ♀.—We have only a few specimens, from the Pyrenees, Basses Alpes, Doubs and Zermatt. Kolenati described the species from the Altvater Mts. in Moravia.

6. **Hystrichopsylla talpae** Curtis 1826.

2 ♀♀.—The true host of this species in Norway, no doubt, is *Sorex araneus*.

SIPHONAPTERA COLLECTED BY MR. C. ELTON IN LAPLAND.

By KARL JORDAN, Ph.D., F.R.S.

(With 1 text-figure.)

IN a short paper entitled "Die aus der arktischen Zone bekannten Flöhe" (*Fauna Arctica*, vi. 2, p. 117, 1932) I enumerated 10 species as known from the Arctic Zone. The collection made by C. Elton[1] in 1930 in Norwegian Lapland adds no less than 5 species to that list: *Amphipsylla thoracicus*, *Leptopsylla silvatica*, *Corrodopsylla birulai*, *Rhadinopsylla casta* and *Ctenophthalmus uncinata*. Mr. C. Elton is to be congratulated on this most satisfactory result. The material obtained of *Amphipsylla thoracicus* and *Corrodopsylla birulai* is especially interesting, the ♂♂ of the former enabling us to settle the status of the species, and the latter being new for the British Museum collection.

1. **Ceratophyllus garei** Roths. 1902.

Goeidnovuoppe, 25.vii., on *Evotomys rutilus*, 2 ♂♂.——A circumpolar species extending southward to Central Europe.

2. **Ceratophyllus rectangulatus** Wahlgren 1903.

Goeidnovuoppe, 24.-27.vii., on *Microtus ratticeps*, 7 ♀♀; 25.vii., on *Evotomys rutilus*, 3 ♀♀; 27.vii., on *Microtus agrestis*, 1 ♀.——Imofoss, 11. and 12.viii., on *Evotomys rufocanus*, 3 ♂♂, 1 ♀; 12.viii., on *Evotomys rutilus*, 1 ♂, 1 ♀; 12.viii., on *Microtus ratticeps*, 1 ♀.——Kautokeino, 5.viii., on *Microtus ratticeps*, 2 ♂♂.——Near Mieron, 3.viii., on *Lemnus lemnus*, 3 ♀♀.——Mieronvarre, 4.viii., on *Lemnus lemnus*, 1 ♂, 1 ♀.——Beskenjargga, 19.vii., on *Evotomys rufocanus*, 2 ♀♀.——Punta, 17.viii., on *Microtus agrestis*, 1 ♀; 20.viii., on *Evotomys rufocanus*, 1 ♀.

3. **Ceratophyllus penicilliger** Grube 1852.

Punta, 20.viii., on *Evotomys rutilus*, 3 ♂♂; 15.viii., on *Evotomys rufocanus*, 2 ♀♀; 15.viii., on *Microtus agrestis*, 1 ♂; 19.viii., on *Neomys fodiens*, 1 ♀.——Mieronvarre, 4.viii., on *Lemnus lemnus*, 2 ♀♀.——Kautokeino, 5.viii., on *Microtus ratticeps*, 2 ♀♀.——Imofoss, 12.viii., on *Evotomys rutilus*, 1 ♀; 13.viii., on *Lemnus lemnus*, 1 ♂.——Goeidnovuoppe, 26.vii., on *Evotomys rutilus*, 1 ♀.——Near Skoganvarre, 15.vii., on *Lemnus lemnus*, 1 ♀.

4. **Amphipsylla thoracicus thoracicus** Roths. 1911 (text-fig. 14).

Punta, 15. and 20.viii., on *Evotomys rufocanus*, 2 ♂♂, 2 ♀♀; 18.viii., on *Microtus agrestis*, 1 ♀.——Goeidnovuoppe, 30.vii., on *Evotomys rutilus*, 1 ♀.——Imofoss, 12.viii., on *Evotomys rufocanus*, 1 ♂.

Originally described from 2 ♀♀ obtained in Finland. The ♀♀ of several species of *Amphipsylla* not being distinguishable (according to our present

[1] Oxford University Exploring Club.

limited knowledge), it has remained doubtful in the absence of the ♂ as to whether *A. thoracicus* was really different from one or the other of the allied forms. Mr. Elton's discovery of the ♂ enables us to answer the question. The present series compared with the specimens of *A. sepifera* J. & R. 1920 convinces me that *A. thoracicus* and *A. sepifera* are geographical developments of one species and should be treated as subspecies: *A. th. thoracicus* known from Finland and Lapland (*A. rossica* Wagner 1919 (♀) from Russia probably being the same) and *A. th. sepifera* J. & R. 1920 from the Swiss Alps and adjacent districts of France. The ♂-genitalia of *A. th. thoracicus* differ from those of *A. th. sepifera* (*Ectoparasites*, i. text-figs. 80, 81) in several details: Manubrium of clasper shorter, exopodite F likewise shorter, apically broader, much less gradually widening towards apex, its posterior margin distinctly incurved above middle, the proportion of width to length being 14 : 30 in *A. th. thoracicus* and 14 : 35 in *A. th. sepifera*. Bristles (on the two sides together) of VI. st. 7, VII. st. 7 or 8, and on VIII. st. 8 to 10 long lateral (!) ones. In one specimen the left exopodite F has a smallish spiniform in between the two large ones, but more lateral. On VI. st. of ♀ 14 to 16 bristles, and on VII 20 to 23, on the two sides together. Total number of apical spines on abdominal tergites in ♂♂ 14 to 16, in ♀♀ 15 to 19.

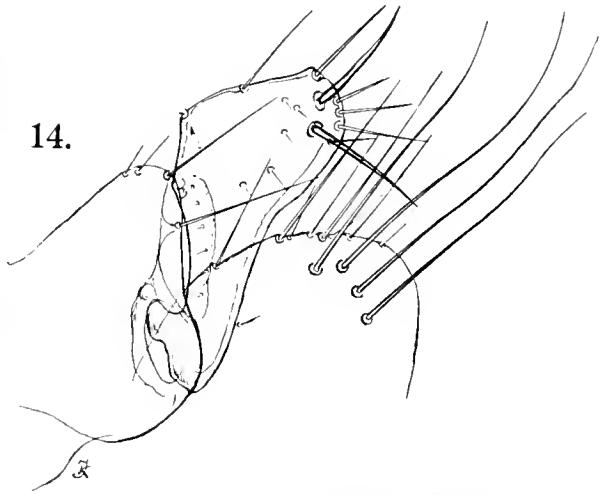


Fig. 14.—*Amphipsylla thoracicus thoracicus* ♂.

5. **Leptopsylla silvatica** Meinert 1896.

Imofoss, 11. and 12.viii., on *Evotomys rufocanus*, 4 ♂♂; 12.viii., on *Microtus ratticeps*, 1 ♀.——Punta, 15. and 19.viii., on *Microtus agrestis*, 2 ♀♀; 19. and 20.viii., on *Evotomys rufocanus*, 2 ♂♂, 1 ♀; 20.viii., on *Evotomys rutilus*, 1 ♀; 23.viii., on *Sorex araneus*, 1 ♀.——Cf. anteà, p. 254.

6. **Corrodopsylla birulai** Joff 1927.

Goeidnovuoppe, 25.vii., on *Neotomys fodiens*, 3 ♂♂; 27. and 29.viii., on *Microtus ratticeps*, 1 ♂, 2 ♀♀, 25.vii., on *Evotomys rutilus*, 1 ♀.——Kautokeino, 5.viii., on *Sorex araneus*, 1 ♀.——Joff described this species as *Doratopsylla birulai* from a single ♀ found on *Rattus rattus norwegicus* at Tchita, Transbaicalia. In 1929 Wagner (*Konowia*, p. 316) added the description of a ♂ obtained at Brjansk in European Russia and proposed for this species and the North American *Doratopsylla curvata* Roths. 1915 the subgenus *Corrodopsylla*, which I prefer to

treat as a genus. The specimens from Lapland do not seem to differ from the Russian ♂ and the Transbaicalian ♀.

7. **Rhadinopsylla casta** Jord. 1928.

Imofoss, 12.viii., on *Microtus ratticeps*, 1 ♂, 1 ♀.——Punta, 15.viii., on *Evotomys rufocanus*, 2 ♂♂.——The total number of apical spines on the abdominal tergites I to VI is 26, 27 and 35 in the 3 ♂♂, and 26 in the ♀.

8. **Ctenophthalmus uncinata** Wagner 1898.

Imofoss, 12.viii., on *Microtus ratticeps*, 1 ♂, 2 ♀♀; 18.viii., on *Evotomys rufocanus*, 1 ♂.

SIPHONAPTERA COLLECTED BY HERR GEORG STEIN IN THE HIGH TATRA.

BY KARL JORDAN, PH.D., F.R.S.

(With 4 text-figures.)

1. **Amphipsylla thoracicus hetera** subsp. nov. (text-fig. 15).

♂♀. The ♀ does not present any differences from *A. thoracicus* Roths. 1911. In the ♂ the bristles of abdominal sternite VIII are slenderer and slightly more numerous and there are at the apex of this segment about twice as many minute pale spiniform bristles than in *A. th. sepifera* J. & R. 1920; manubrium of clasper gently curved upwards; process P narrower than in *A. th. sepifera*;

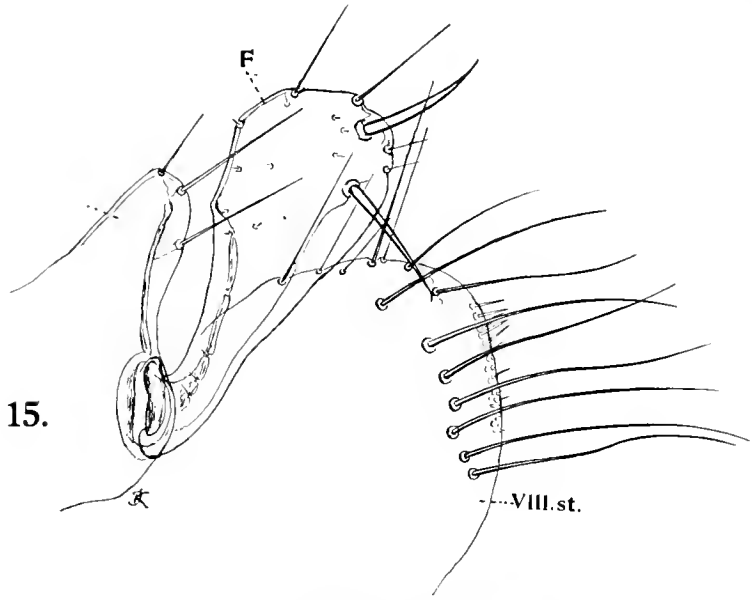


FIG. 15.—*Amphipsylla thoracicus hetera* ♂.

exopodite F apically more rounded on the posterior side and less evidently truncate; between the two pointed spiniforms only two small hairs. Total number of apical spines on abdominal tergites in ♂ 19, in ♀♀ 16; bristles on abdominal sternites in ♂ VI 10, VII 10, in ♀♀ VI 13 and 14, VII 19, on VIII. st. in ♂ 13 long lateral ones (on the two sides together).

Mlynicat valley, 2.x.29, on *Pitymys* sp., 1 ♂ (type), 2 ♀♀.

2. **Palaeopsylla steini** sp. nov. (text-figs. 17, 18).

♂♀. Very close to *P. kohauti* Dampf 1910, differing in the tail-ends.

♂. Clasper and exopodite practically the same as in *P. kohauti*, but the apical portion of ninth sternite (IX. st.) longer and much more gradually narrowed, not

subtruncate, the spiniforms more numerous. Armature of aedeagus (= penis plus accessory sclerites) remarkably different. We figure for comparison the aedeagus of *P. kohauti* (text-fig. 16, specimen from Misurina, Dolomites, the organ the same in specimens from other districts inclusive of Great Britain); the external paramere (Ext. Par.) surrounds the inner one (Int. Par.), its ventral apical angle (va) is produced downwards, and the distal margin subdorsally angulate, this angle projecting sometimes a little more than in our figure, sometimes less; the small tooth (or rather what appears as such in a lateral aspect) lying above the end-tube of the penis shorter in *P. kohauti* than in *P. steini*. The external (or lateral) paramere of *P. steini* (text-fig. 17) is apically strongly chitinized, truncate, with the dorsal angle produced into a strong hook and the ventral angle (va) rounded off, not produced downwards; the inner (or dorsal) paramere is more distal than the outer one and much shorter than in *P. kohauti*.

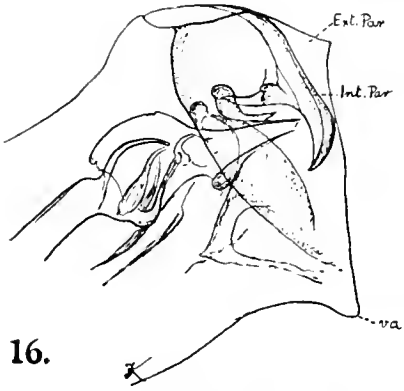


FIG. 16.—*Palaeopsylla kohauti* ♂.

♀. Sternite VII varies a great deal, as shown in text-fig. 18, *a–c*, the two sides of the same specimen not even being quite alike; in all three examples we

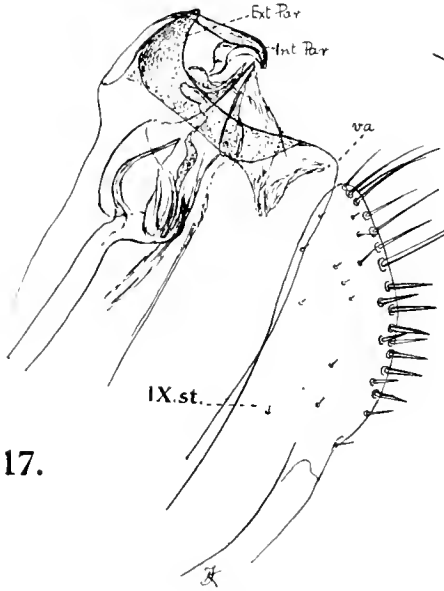


FIG. 17.—*Palaeopsylla steini* ♂.

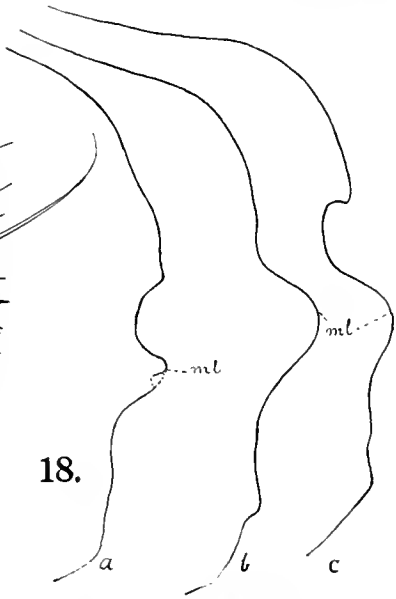


FIG. 18.—*Palaeopsylla steini* ♀.

have of this sex of *P. steini* the upper portion of the apical margin projects much less than in *P. kohauti*, the small median lobe (ml) projecting farther anad than the upper lobe, whereas in *P. kohauti* the dorsal lobe extends much beyond the apex of the median lobe.

Nove Stbske Pleso, ix.29, on *Talpa europaea*, 4 ♂♂, 3 ♀♀.

In the ♂♂ from the Dolomites and Swiss Alps sternite IX is less truncate than in Dampf's figure and than in British specimens. We have no topotypical material of *P. kohauti* (East Prussia). I expect Hungarian specimens to belong to *P. steini*, not to *P. kohauti*.

3. **Rhadinopsylla casta** Jord. 1928.

Stbske Pleso, 26.ix.29, on *Microtus agrestis*, 1 ♂.——Hitherto only known from Switzerland and the Dolomites. The specimen agrees well with the ♂♂ from the Dolomites (we have no Swiss ♂). Recorded from Lapland, anteà, p. 257.

4. **Ceratophyllus penicilliger** Grube 1852.

Stbske Pleso, 2.x.29, on *Pitymys* sp., a small series.

5. **Leptopsylla silvatica** Meinert 1896.

Stbske Pleso, 26.ix.29, on *Microtus agrestis*, a small series ; also on *Evotomys* sp., 30.ix.29, a small series.——Cf. anteà, pp. 254 and 256.

6. **Doratopsylla dasycnemus** Roths. 1897.

Stbske Pleso, 29.ix.29, on *Sorex araneus*, a few specimens.

7. **Hystrichopsylla talpae** Curtis 1826.

Stbske Pleso, 26.ix.29, on *Microtus agrestis*, 1 ♂.

A NEW *XENOPSYLLA* FROM HAWAII.

By KARL JORDAN, Ph.D., F.R.S.

(With 4 text-figures.)

SOME time in 1931 I asked Mr. Harold R. Hagan, of the University of Hawaii, whether he could procure for me fleas from the native Hawaiian rat, as I expected this rat, if really indigenous, to have a species of flea of its own. Mr. Hagan very kindly acceded to my request and sent in June 1932 a large number of fleas collected on rats by Dr. C. R. Eskey, of the U.S. Bureau of Public Health, who had been making a survey of the flea situation in the Hawaiian islands. Among this material there is a series of specimens of a new *Xenopsylla* found principally on *Rattus hawaiiensis*. I am very grateful to Dr. C. R. Eskey and Mr. Hagan for submitting the material to me for study.

Xenopsylla hawaiiensis sp. nov. (text-figs. 19, 20).

♂♀. A near relative of *X. vexabilis* Jord. 1925, known to me from Australia and New Guinea, and of *X. nesiotes* J. & R. 1908, from Christmas I., south of Java. All three species (or are they geographical developments of one species ?) agree with the African *X. nubicus* Roths. 1903 and the Indian *X. astia* Roths. 1911 in the ventral arm of the IX. st. of the ♂ being only ventrally sclerified, and with *X. cheopis* Roths. 1903 in the general shape of the receptaculum seminis of the ♀. Whereas in the ♂♂ of *X. nubicus* and *X. astia* the paramere has a free, dorsal, apical, thorn-like process, the paramere is conical, and without that process in *X. nesiotes*, *X. vexabilis* and the sp. nov. In the last two species the longest bristle of segment II of hindtarsus reaches in ♂ and ♀ beyond IV, which is not the case in *X. nesiotes*; in this species the ventral tooth before the apex of the ejaculatory tube is shorter than in the other two and there is no projecting ventral tubercle posterior to the vesicle as in *X. vexabilis* and *X. hawaiiensis*; the non-sclerified portion of the ventral side of process P^2 of clasper is in *X. hawaiiensis* at least as long as, usually longer than, the sclerified apical portion, whereas in *X. vexabilis* and *X. nesiotes* the sclerified portion is the longer one; in the ♂ of *X. nesiotes* there is a row of three longish apical bristles on each side of the IX. t. behind the pygidium, in the two other species the median bristle is small. Last ventral bristle of VIII. st. of ♂ as near to apical margin as in *X. nesiotes* and *X. vexabilis*. On the whole the bristles of *X. hawaiiensis* are more numerous than in *X. vexabilis* and less numerous than in *X. nesiotes*. Number of lateral bristles on outer surface of hindtibia in *X. hawaiiensis* 8 to 11, in *X. vexabilis* 7 to 9, in *X. nesiotes* 10 to 14; subventral lateral bristles on outer surface of hindtibia in *X. hawaiiensis* ♂ 1 to 4, ♀ 4 or 5, in *X. vexabilis* ♂♀ 2, in *X. nesiotes* ♂♀ 4 to 6, usually 5 or 6. Bristles on outer surface of hindtarsal segment I in *X. hawaiiensis* 3 to 5, in *X. vexabilis* 3 or 4, in *X. nesiotes* 6 to 9. On outer surface of VIII. st. of ♂ in *X. hawaiiensis* 14 to 17, in *X. vexabilis* 13 or fewer, in *X. nesiotes* over 20. On outer surface of VIII. t. of ♀ inclusive of marginal row (but exclusive of marginal bristles of inner side) in *X. hawaiiensis* 27 to 33, in *X. vexabilis* 19, in *X. nesiotes* 35 or 36.

In the number of bristles on the metepimerum and the abdominal tergites I to VII and sternites III to VI *X. hawaiiensis* agrees with *X. nesiotes*, whereas *X. vexabilis* has fewer bristles: on metepimerum in *X. hawaiiensis* 12 to 14, in *X. vexabilis* 8 to 11; on abdominal tergites in *X. hawaiiensis* I 7 to 10, 6 or 7, II 15 to 17, III 16 or 17, in *X. vexabilis* I 5 or 6, 6, II 14 or 15, III 14 or 15. On sternites in *X. hawaiiensis* ♂ III 8, rarely 7, IV 8, rarely 7, V 7 to 9, VI 8 to 10, VII 9 or 10, in ♀ III 8 to 10, IV 9 or 10, V 10, VI 10 to 13, VII 10 to 12, in *X. vexabilis* ♂ III to VII 6, in ♀ III 6, IV 7, V 8, VI 8, VII 8.

Spermatheca larger than in the two allied species, as will be seen from figures 20–22, which are drawn to scale. In both *X. hawaiiensis* (text-fig. 20) and

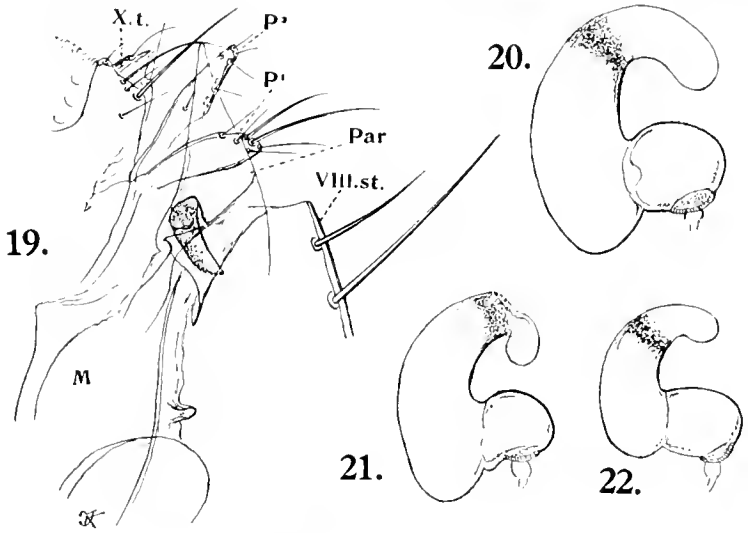


FIG. 19.—*X. hawaiiensis.*
" 20. " "
FIG. 21.—*X. vexabilis.*
" 22.—*X. nesiotes.*

X. vexabilis (text-fig. 21) its tail is much more ventricose than in *X. nesiotes* (text-fig. 22); moreover, the tail is considerably longer and more strongly curved. The head of the spermatheca is more strongly convex dorsally in *X. hawaiiensis* than in *X. vexabilis*, whereas in the latter the head shows a swelling ventrally between tail and orifice; the brown tint of the tail extends farther up in *X. vexabilis* and the pale apical portion is correspondingly shorter. As we have only one ♀ of *X. vexabilis*, we do not know whether these distinctions will hold good. In the diagnosis of *X. vexabilis* (NOV. ZOOL. xxxii. 1925, p. 100), it is said that the spermatheca is variable and that we had one pair: this contradiction requires explanation. The diagnosis was based on a ♂ and a ♀; when correcting the proofs I found that we had a second ♀, unmounted, from the same place and host; the spermatheca appeared to differ to some extent from that of the mounted specimen, and I added the word variable to the statement "the spermatheca nearly as in *X. nesiotes*," and forgot to say that we had a ♀ besides the pair. The specimen is now mounted, and I find that its spermatheca is far more different than it appeared to be when still in alcohol; the specimen probably represents a new species; more material is required.

Process P^2 of the clasper (text-fig. 19) bears 6 bristles, 3 of them at apical

margin, 2 lateral close to them and one dorso-marginal, occasionally one of the lateral bristles missing or an additional apical one present. The dark collar above the apical tube of the ejaculatory duct much narrower than in *X. nesiotes*, as is also the case in *X. rexabilis*.

Length ♂ 1·6–1·7 mm., ♀ 2·0–2·3 mm.

Hawaiian Islands: Honokaa, Hawaii; and Maui; on rats, especially on *Rattus hawaiiensis*, a series.

The species was obtained together with a number of other fleas, a list of which has been sent to Dr. C. R. Eskey. *X. cheopis* Roths. 1903 was commoner than *X. hawaiiensis*.

Dr. C. R. Eskey has given me the following interesting information: "*X. hawaiiensis* has a very peculiar distribution. For example, not a single specimen of it has been found in Honolulu or vicinity, while it is quite common on rats caught about 9 miles away on the opposite side of the island. It is essentially a flea of field rats and rarely found on rats caught in buildings."

NEW ORIENTAL FLEAS.

By KARL JORDAN, Ph.D., F.R.S.

(With 10 text-figures.)

1. **Trichopsylla homoeus carenis** subsp. nov.

DIFFERS from *T. homoeus homoeus* Roths. 1906 in bearing fewer and thinner bristles, especially in the ♂.

♂♀. Metepimerum with 7 bristles in ♂ (4, 3), with 12 to 13 in ♀ (6, 6 ; 7, 6 ; 8, 5 ; 7, 5). Bristles on abdominal tergites below stigmata on each side : in ♂ II 2, 1 or 2, 2, III 2, 1 or 2, 2, IV 1, 1, V 1, VI 1, VII 1, VIII 3, in ♀ II 4, 2 or 3, 2, III 3, 1, IV 1, V 1, VI 0, VII 0, VIII 7 to 10 ; above stigmata on the two sides together : in ♂ I 11, 9, II 13, 12, III 10, 11, IV 5, 11, V 2, 11, VI 2, 11, VII 9, 2, VIII 7, in ♀ I 12, 9 or 10, II 13 to 15, 12, III 7 to 11, 11 or 12, IV 5, 10 to 12, V 3, 11, VI 2, 10, VII 2 or 3, 10, VIII 7 to 9 ; on abdominal sternites : in ♂ III 13, VI 5, VII 4, in ♀ VI 12 or 19, VII 12 or 13. On out- and inside of hindfemur in ♂ 8, in ♀ on outside 11 or 12, on inside 10 or 11 ; on midfemur in ♂ on outside 4 or 6, on inside 4 or 5, in ♀ on outside 4. On outside of hindtibia 10 lateral bristles. Pygidium with 14 or 15 grooves on each side. Tibiae with 6 dorsal notches inclusive of apical one. At posterior side of clasper of ♂, from near manubrium to apical angle 22 to 25 marginal bristles, on outer surface about 5 lateral ones, on inner surface from acetabulum downwards 3 or 4.

Upper Burma : Myitkyna, off *Mustela* sp. (Capt. F. Kingdon Ward), 1 ♂ (type), 2 ♀♀.

2. **Paraceras pendleburyi** sp. nov. (text-figs. 23, 24).

♂♀. Close to *P. javanicus* Ewing 1924, differing in some detail of the tail-ends. In ♂ VIII. t. with more marginal and submarginal long bristles and fewer lateral ones ; process P of clasper longer, reaching to anterior apical angle of exopodite F ; dorsal margin of F less convex, the posterior apical flap broader and shorter, and the middle one of the three subapical marginal bristles much more spiniform than in *P. javanicus* ; apical lobe of IX. st. narrower. The only known ♂ of *P. javanicus*, in U.S. Nat. Mus. (Washington), not being cleared, the details of structure are much obscured.

In ♀ the ventral angle of VII. st. produced and very acute, the projection being much narrower than in *P. javanicus*, recalling *P. sauteri* Roths. 1914, from Formosa. Stylet longer. *P. melinus* Jord. 1925, described from a single ♀ without locality (presumably from India), is another form closely related to *P. pendleburyi* ; it agrees with it in the thorax and abdomen bearing fewer small bristles than in *P. javanicus*, but the ventral apical lobe of VII. st. is obtuse, rounded-emarginate. *P. pendleburyi* differs from both *P. javanicus* and *P. melinus* in the midtarsal segment I being much shorter, the proportional lengths of this segment and the midtibia being in *P. javanicus* 1 : 2·4, in *P. melinus* 1 : 2·5 and in *P. pendleburyi* 1 : 2·9. In all three species the proboscis is shorter than in *P. melis* Walk. 1856 and allies, reaching at most to the apex of the trochanter.

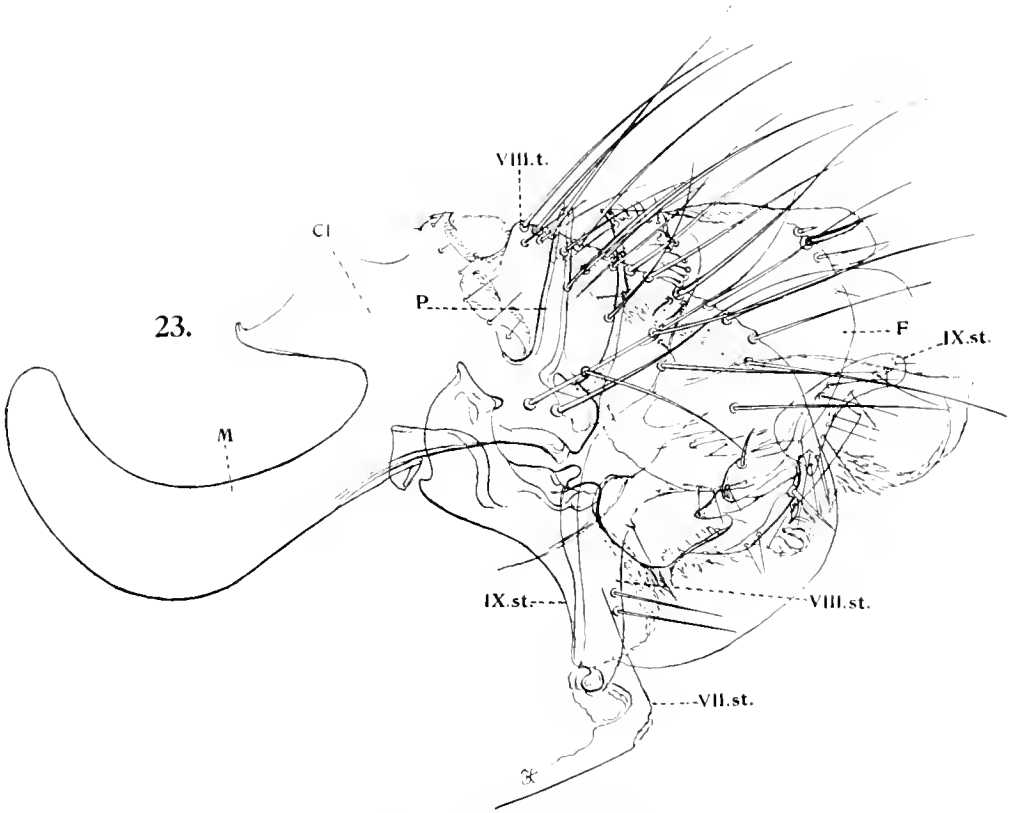


FIG. 23.—*Paraceras pendleburyi* ♂.

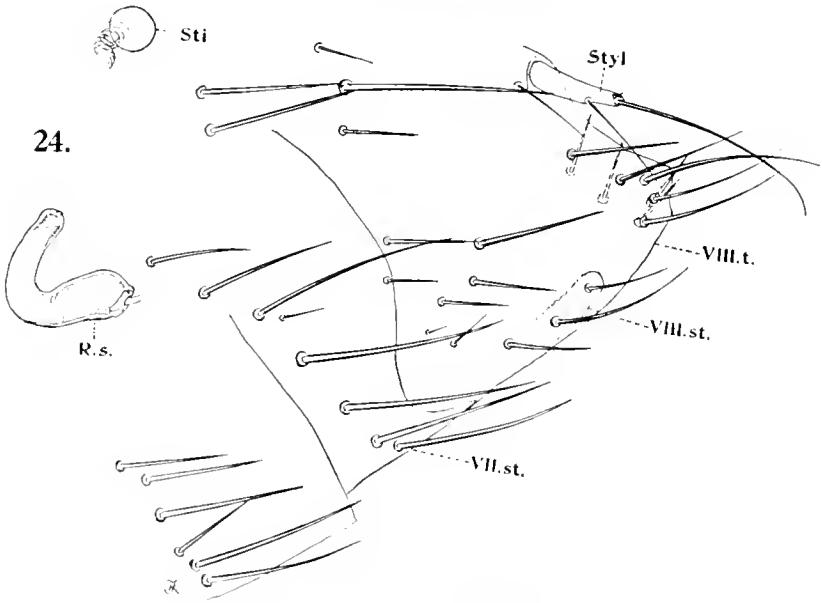


FIG. 24.—*Paraceras pendleburyi* ♀.

Bristles on abdominal tergites of *P. pendleburyi*: in ♂ I 15 to 25, 11 or 12, II 13 to 21, 14 to 16, III 11 to 17, 14 to 16, IV 9 to 15, 14 to 16, V 10 to 14, 14 to 16, VI 9 to 12, 13 or 14, VII 8 to 12, 12 to 15; in ♀ I 15 to 22, 10, II 14 to 16, 13 or 14, III 12 to 14, 14 or 15, IV 12 to 15, 13 or 14, V 9 to 14, 13 or 14, VI 7 to 10, 12 or 13, VII 3 to 10, 11 or 12. On sternites III to VI in ♂ usually 6, on VII usually 7: ♂ III 4 to 6, IV 4 to 6, VI 6, VII 6 or 7; in ♀ III 6 or 7, IV 7 to 9, V 7 to 10, VI 7 to 12, VII 13 to 16 (on the two sides together).

North Borneo: Kamborangah, Mt. Kinabalu, iv.1929, on *Helictis everetti*, a series (H. M. Pendlebury).

3. **Ctenophthalmus crudelis** sp. nov. (text-fig. 25).

♀. Stigma of VIII. t. large, last ventral bristle of VIII. t. subspiniform, placed above the last long one, as in *Ct. assimilis* Taschenb. 1880 and a large number of other species; distinguished by the VII. st. and the spermatheca.

Tubercle of frons well below middle. Proboscis slender. Pronotal comb of 15 spines (inclusive of small ventral one each side), the dorsal spines about one-third longer than the pronotum; a row of 10 bristles. On mesonotum a fairly large number dorsally between the anterior rows and base. On metanotum about 6 bristles in front of the 2 rows. Abdominal tergites likewise with 2 rows, containing on III 13, 14, IV 12, 14, VI 11, 12, and on VII 8, 9, there being in addition a few bristles in front of the anterior row; on sternites III 4, 11, IV 3, 10, V 4, 10, VI 6, 9, VII 1, 9. Hindtibia with 7 dorsal notches, long postmedian bristles on one tibia half the length of the tibia, on the other two-fifths only; longest apical bristle of hindtarsal segment II reaching to subapical notch of III. VII. st. not incrassate at margin, a deep rounded sinus divides the segment into a very prominent, irregularly triangular, upper lobe and a much broader, but very feebly convex lower lobe, the apical margin oblique from this lobe to ventral margin which it reaches a short distance behind the long ventral bristle. VIII. t. ventrally with 8 bristles. Stylet thrice as long as broad. Head of spermatheca broader than in the allied species, widest in middle, rather strongly convex above in middle (malformation ?).

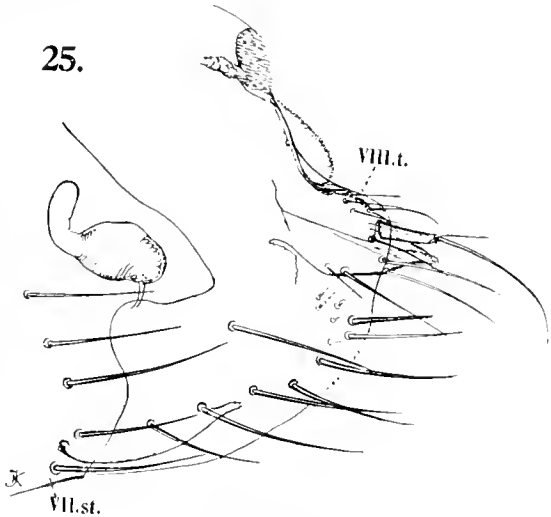


Fig. 25.—*Ctenophthalmus crudelis* ♀.

Length 2·5 mm., hindfemur 0·34 mm.

Upper Burma: Myitkyna (Capt. F. Kingdon Ward), 1 ♀, host not mentioned.

4. **Palaeopsylla remota** Jord. 1929 (text-fig. 26).

Described from a single West Chinese ♀. The 3 ♀♀ obtained by Harold Stevens in Sikkim agree with the type. In my figure of the type the portion below the subventral lobe of VII. st. is rather too wide, the lobe being nearer the ventral margin than in the figure. In the ♂ the exopodite extends beyond the apex of the clasper (text-fig. 21), is about five times as long as broad and almost exactly as long as the manubrium measured ventrally from the extreme base of F; the apex is almost evenly rounded or posteriorly slightly flatter than anteriorly. Anterior and posterior dorsal angles of vertical arm of IX. st. projecting, acute; ventral arm gradually narrowed, with 4 or 5 short bristles at apex, of which the uppermost is the strongest, and a few additional ventral bristles farther frontad. Parameres with 2 sharp hooks on each side.

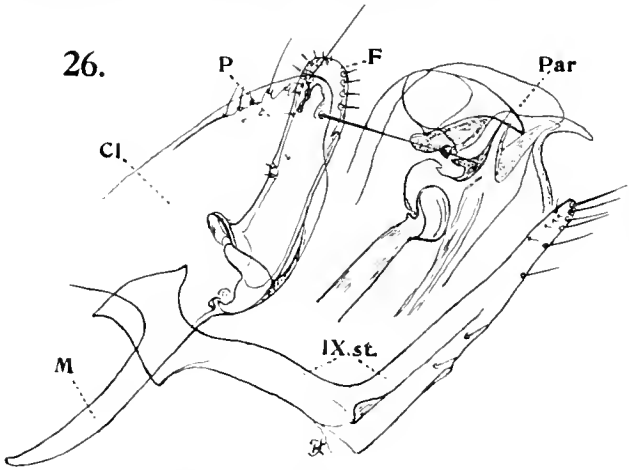


FIG. 26.—*Palaeopsylla remota* ♂.

Sikkim: Lingtam, 1.ii.31, on *Anourosorex assamensis*, 3 pairs (H. Stevens).

5. **Palaeopsylla incurva** sp. nov. (text-figs. 27, 28).

♀. Close to *P. remota* Jord. 1929 from China and Sikkim, differs especially in the spines of the pronotal comb being concave on their dorsal sides, and the proboscis reaching to apical third of coxa.

Head shorter than in the various European species; genal spines nearly as

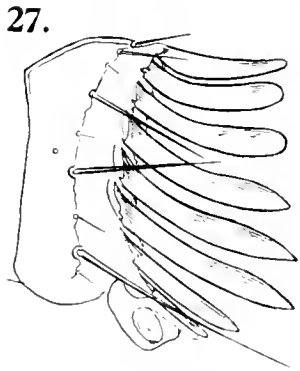


FIG. 27.—*Palaeopsylla incurva* ♀.

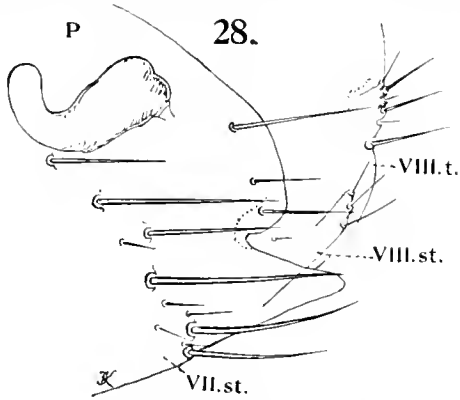


FIG. 28.—*Palaeopsylla incurva* ♀.

in *P. sorecis* Dale 1878, but the second and third spines (from below) broader, second obtuse as in *P. sorecis*, not pointed as in *P. remota*. Pronotum convex dorsally (text-fig. 27), with a comb of 16 spines (inclusive of a small ventral one each side), dorsal spines obtuse, fourth from above acuminate, fifth and sixth more sharply pointed and longer. Lower antepygidial bristle two-thirds the length of the middle one, longer than in other species. VII. st. (text-fig. 28) divided by a triangular sinus into a broad, rounded, upper lobe and a narrow, triangular, longer lower one (the sinus somewhat broader on right side in the unique specimen, as indicated by a dotted line); in *P. remota* the lower lobe is subventral and the sinus above it broadly rounded; 11 large and 11 small bristles on the two sides together. VIII. t. as in *P. remota* with a cluster of 6 apical bristles, of which 3 are quite small, and 3 about the size of the anterior bristles of the abdominal tergites, the lowest of them being the longest. VIII. st. with 3 longish bristles as in *P. remota*. Spermatheca somewhat humped dorsally.

North-east Burma: Adung Valley, off *Sorex* sp., 1 ♀ (Capt. F. Kingdon-Ward and Lord Cranbrook).

6. **Neopsylla dispar** sp. nov. (text-figs. 29, 30).

♂♀. Near *N. stevensi* Roths. 1915 and allies; cf. NOV. ZOOL. xxxvi. p. 220 (1931). In ♂ the ventral arm of IX. st. rather broad, with long bristles along ventral margin, without spines; in ♀ VII. st. deeply sinuate, head of spermatheca short, tail long.

On pronotum a comb of 20 or 21 spines, which are one-half longer than pronotum in ♂, only a little longer than pronotum in ♀; bristles in ♂ 0, 12, in ♀ 5, 12 (the two sides together). Bristles on mesonotum in ♂ 26 (approximately), 14, in ♀ 30, 12; on metanotum in ♂ 22, 14, in ♀ 31, 12; on metepimerum in ♂ 5, 4, 1, in ♀ 5 or 6, 6, 1.

Spines on abdominal tergites in ♂ I 5, II 4, III 4, IV 2, V 2, in ♀ I to V 2; bristles in ♂ II 16, 18, III 14, 18, IV 8, 17, V 7, 15, VI 5, 16, VII 5, 13, in ♀ II 25, 17, III 26, 17, IV 25, 17, V 19, 17, VI 19, 16, VII 18, 13. On sternites in ♂ III 13, IV 10, V 10, VI 8, VII 12, in ♀ III 23, IV 16, V 18, VI 16, VII 27.

On inner surface of hindcoxa a patch of 9 to 11 short spiniforms in ♂, 6 or 7 in ♀.

Modified Segments.—♂. VIII. st. unfortunately broken (text-fig. 29), its apical margin apparently almost evenly rounded, proximally to it 5 or 6 bristles, four of them evidently very long, on sides and near ventral margin about 9, some of which are short. Manubrium narrow, rather strongly curved upwards, more so than in *N. sondaica* Jord. 1931; process P^1 of clasper (Cl) short, with 3 long marginal bristles on outside and 3 smallish ones, 2 of them lateral, 1 dorsal; process P^2 much longer than P^1, evenly rounded at apex, groove for reception of subapical angle of F near apex; exopodite F lanceolate, its free anterior margin half the length of F, on posterior margin, which is almost evenly rounded in ventral half, with some small bristles, of which one each near apex, above middle and below middle is longer. Ventral arm of IX. st. very distinctive, its apex obliquely truncate, the ventral angle more or less rounded, at upper angle 2 thin bristles, further down 4 long ones, and at ventral margin beyond middle a row of 4, of which 2 are long (on right side arm of IX. st. the posterior bristle of this

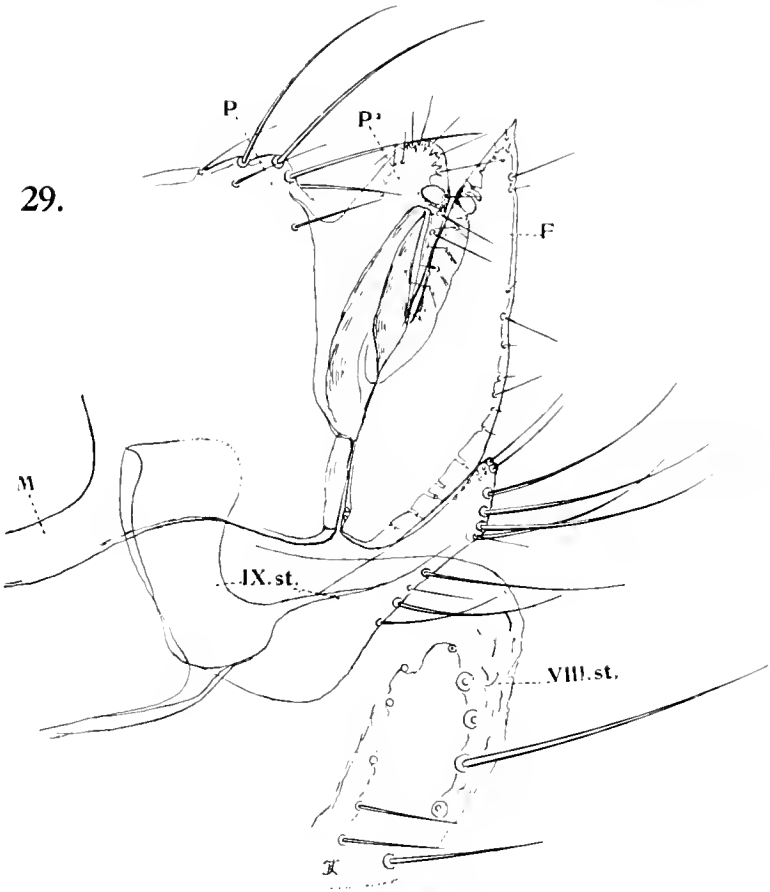


FIG. 29.—*Neopsylla dispar* ♂.

row nearer to apex than on left arm here figured).——♀. VII. st. (text-fig. 30) deeply divided by a triangular sinus, the upper lobe gradually narrowed to a point, the lower one not projecting beyond the apical angle of the ventral margin of the segment, its margin slanting distad from sinus, slightly rounded. On each side of VIII. t. about 10 small dorsal bristles, on ventro-apical area 10 or 11 on outside and 9 or 10 on inside. Head of spermatheca less than twice as long as broad, somewhat widening towards tail, which, measured along the outside curve, is more than twice the length of the head.

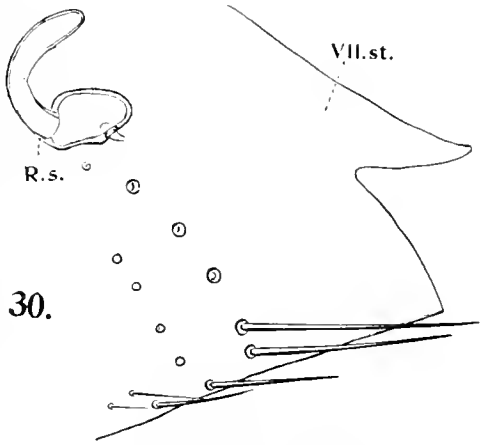


FIG. 30.—*Neopsylla dispar* ♀.

North-east Burma : Adung Valley, on *Epimys* sp., 1931, a pair (Capt. F. Kingdon Ward and Lord Cranbrook).

Xenodaeria gen. nov.

♂. In the shape of the pronotum similar to *Caenopsylla* Roths. 1909, but otherwise very different. Labial palpus with 4 segments ; a vertical genal comb as in *Rhadinopsylla* J. & R. 1912 ; occiput with a median dorsal incrassation (text-fig. 31) ; from below frontal tubercle to vestigial eye an internal incrassation slightly resembling the letter S.

Pronotum dorsally more than twice as long as ventrally, measured from bases of spines, posterior margin incurved, spines strongly incurved, except lower ones, gradually decreasing in length from third from below upwards. Metasternum as in *Rhadinopsylla* with long median projection and short sharp lateral one ; metepimerum without the patch of dense striation present in *Rhadinopsylla*. Three antepygidial bristles. Pygidium with 14 grooves each side. Hindcoxa in apical half with about 10 small lateral hairs on inner surface. Segment V of all tarsi with five pairs of plantar bristles, the first pair placed in between the second. VIII. st. (♂) very large.——Genotype : *X. telios* sp. nov.

7. **Xenodaeria telios** sp. nov. (text-figs. 31, 32).

♂. Frons short (from comb to tubercle), almost evenly rounded from occiput to maxillary palpus, with a small tubercle a little below middle, a frontal row of 6 bristles from near antennal groove to near maxillary palpus, rather stout at base, thin at apex, the third from above almost spiniform ; on sides 2 bristles, and 1 at antennal groove ; a comb of 4 genal spines, the first from above half the length of the second, the other two a little shorter than second, fourth narrower ; genal process narrow, projecting well beyond comb ; first segment of maxillary palpus longer than last ; proboscis reaching to apical fourth of coxa. Occiput a very little longer than the distance from frontal tubercle to tip of longest genal spine, with 3 rows of bristles. Bristles of second segment of antenna short. Antennal groove open.

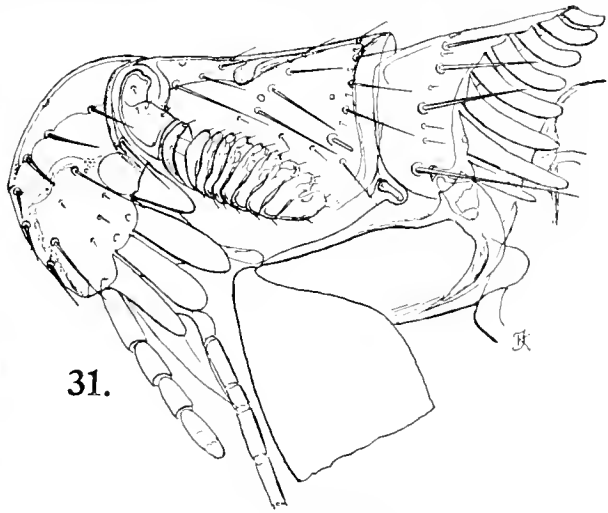


FIG. 31.—*Xenodaeria telios* ♂.

Pronotum with a comb of 16 spines, the dorsal spines rounded at tip, the narrow ventral one straight and pointed ; a row of 9 bristles. Meso- and metanotum with two rows of bristles, the posterior containing 8, mesonotum with a

few additional dorsal bristles in front of the rows and with 6 false subapical spines (on the two sides together). On mesopleura 7 bristles, on metepisternum 1, on metepimerum 4 (2, 2); no apical spine on metanotum, but the margin minutely serrate dorsally.

Abdominal tergites like thoracic tergites somewhat more strongly chitinized dorsally than is usual; number of apical spines on I to V 2; number of bristles on I 8, 8, II 10, 12, III 7, 12, IV 6, 12, V 5, 12, VI 4, 12, VII 3, 11, one bristle below stigma. Median antepygidial bristle long and strong, upper about one-third, lower about two-thirds of median one; the segment very slightly projecting between the two sets. Bristles on sternites III to VIII 4.

Hindcoxa broad, barely one-fourth longer than broad, measured from anterior apical angle to articulation with thorax; one subapical bristle posteriorly. Hindfemur with 3 subapical ventral bristles on outside, 1 on inside, the shorter of the two apical dorsal bristles similar to the lateral bristles of the tibia, but

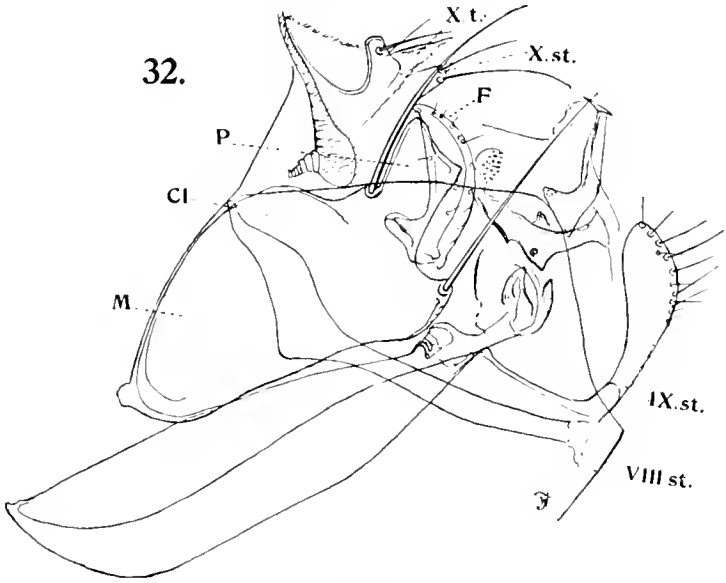


FIG. 32.—*Xenodaeria telios* ♂.

curved (not abbreviated). Hindtibia with 7 dorsal notches inclusive of apical one and a single additional bristle between fifth and sixth, the long bristle of the fifth longer than its distance from apex of tibia, the longest apical one not quite reaching apex of hindtarsal segment I, on outside of tibia 14 or 15 bristles, one of them close to the fifth dorsal pair, on inside no lateral bristles. None of the tarsal bristles reach to the apex of the segment following; lengths of segments: midtarsus 13, 11, 7·5, 5, 12; hindtarsus 30, 19, 12, 8, 13.

Modified Segments.—♂. Stigma of VIII. t. continued to dorsal margin of segment as a narrow stripe bearing scattered hair-like spicules (text-fig. 32). IX. t. raised behind pygidium into a tubercle (lateral aspect) which bears a fairly stout bristle; on anal sternite (X. st.) two apical bristles on each side. Body of clasper (Cl) almost gradually rounded-narrowed frontad, with a very short appendage. A heavy dorsal bristle marks the beginning of process P, which is

about one-fourth longer (on antero-dorsal side) than broad, almost rhombiform, with the anterior upper angle rounded and projecting upwards, the posterior upper angle 90°, the apical margin slightly incurved; one acetabular bristle, long, placed on a projection of the clasper, the margin above the bristle being incurved. Exopodite F claw-like, a little projecting above P, posterior margin evenly curved, with about 6 very thin small bristles, apex pointed. Widened apical portion of vertical arm of IX. st. long, gradually narrowed to a point, anterior side slightly concave, posterior side convex in middle, narrow apex curved upwards; ventral arm gradually widened and at apex narrowed, the apical portion dorsally and ventrally rounded, almost elongate-elliptical, but ventrally convex from apex to below middle, and dorsally convex only towards apex; from apex to middle about a dozen small bristles at ventral margin. Neither IX. st. nor lamina of penis with wire-like levers. Paramere dorsally with a club-like sclerite densely studded with short teeth directed ventrad.

Length 2·2 mm.; hindfemur 0·32 mm.

Sikkim: Lingtam, on *Linsang pardicolor*, 1.ii.31, 1 ♂ (H. Stevens).

SIPHONAPTERA COLLECTED BY HAROLD STEVENS ON THE KELLEY-ROOSEVELT EXPEDITION IN YUNNAN AND SZECHUAN.

By KARL JORDAN, Ph.D., F.R.S.

(With 17 text-figures.)

THE collection is an important contribution to our knowledge of the fleas of China. Twelve species were obtained, one of them represented by 2 subspecies; of these 13 different forms no fewer than 10 are new, and the remaining 3 are represented by specimens among which there is the hitherto unknown sex. Two of the species are so different from everything hitherto discovered that new genera have to be proposed for their reception. We draw special attention to species No. 13, a most striking insect. We thank Mr. H. Stevens very sincerely for making this fine collection and Dr. W. H. Osgood for placing it at our disposal and giving me the names of the hosts.

Mr. Stevens travelled via Burma to Yunnan, and then joined the Kelley-Roosevelt Expedition in West China.

1. **Ceratophyllus sinicus** sp. nov. (text-fig. 33).

♀. Near *C. rossittensis* Dampf 1912, but apex of bursa copulatrix sclerified, and the sclerified portion of the duct of the spermatheca much longer, being nearly as long as in *C. vagabunda* Boh. 1865; differs from the latter species in the short stylet, the much less extended sclerification of the bursa copulatrix, the incurved abdominal sternite VII, the smaller number of bristles on the inner surface of the hindcoxa, etc.

Anterior row on frons with 4 or 5 bristles, the middle one smaller than in *C. rossittensis*; bristles on occiput 1 or 2, 2 and 6, above antennal groove about 16 small ones inclusive of those at posterior angle, which are longer. Genal process ventrally less rounded than in *C. rossittensis*. Antennal segment II with 6 long bristles at apical margin, i.e. fewer than in the allied species.

Pronotum with a comb of 28 spines and a row of 14 long bristles. On meso- and metanotum a row of 11 or 12 and in front of the row about 22 small bristles, somewhat irregularly placed, 8 false spines on mesonotum; on mesopleura 5 or 6 long bristles and anteriorly about 6 small ones; on metepimerum 2, 3, 1 on one side, 3, 3, 1 on the other.

Stigma-cavity of abdominal tergites III to VII round, that of VIII more prolonged upwards than in *C. rossittensis* and *C. vagabunda*; number of bristles on tergites (the two sides together): I 30, 10, II 24, 12, III 20, 14, VI 23, 14, VII 25, 13; on sternites: III 4, 6, IV 2, 6, V 2, 8, VI 3, 8, VII 10, 9; on VIII. t. above stigma (on each side) 10 or 11, below stigma 3 or 4, of which 2 or 3 are long, on lower surface 12 on one side, 15 on the other, inclusive of apical marginal ones, on inner side 4 subapical short ones. Stylet less than twice as long as broad.

On inside of hindcoxa in apical half a submarginal row of 3 bristles on left coxa and 5 on right one, no submarginal bristles on inside farther dorsad. On outside of midfemur 1 subapical subventral bristle, above it 1 or 2 lateral ones, on inside 1 subventral near apex, 2 lateral ones in anterior half, and 1 ventral

towards subbasal notch; on outside of hindfemur 1 subventral subapical bristle, no lateral ones, on inside 4 or 5 lateral ones, besides the subapical one and the subbasal one (not counting the pair in the subbasal notch); on outside of hindtibia 11 or 12 subdorsal lateral bristles exclusive of apical one.

VII. st. much less evenly rounded than in the allied species, its apical margin oblique and somewhat incurved in ventral half, upper half strongly rounded and projecting beyond lower half. Sclerified portion of duct of spermatheca as long as bursa copulatrix plus its duct; only a small apical portion of the bursa sclerified. IX. t. at and near angle below stylet with 2 or 3 bristles, no marginal bristles farther frontad. Spermatheca as in *C. vagabunda*, very slightly narrowing towards orifice.

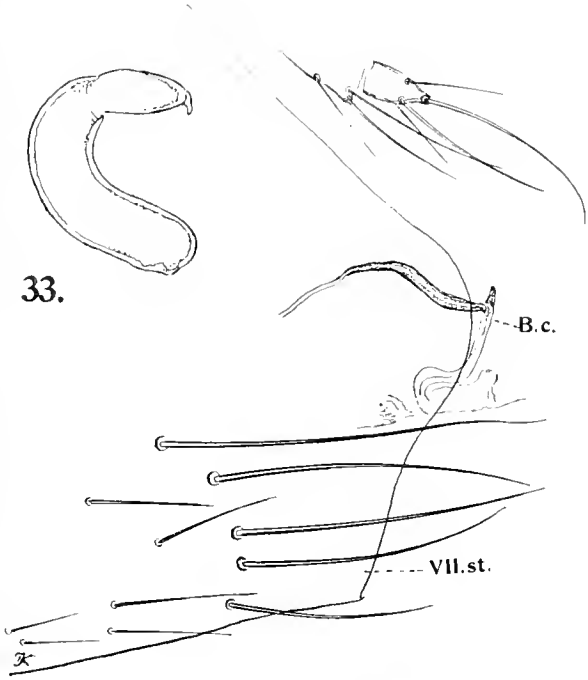


FIG. 33.—*Ceratophyllus sinicus* ♀.

Length: 3·3 mm. (somewhat expanded), hindfemur: 0·47 mm.

Szechuan: Wu-chi, May, on *Ochotona cansa*, 1 ♀.

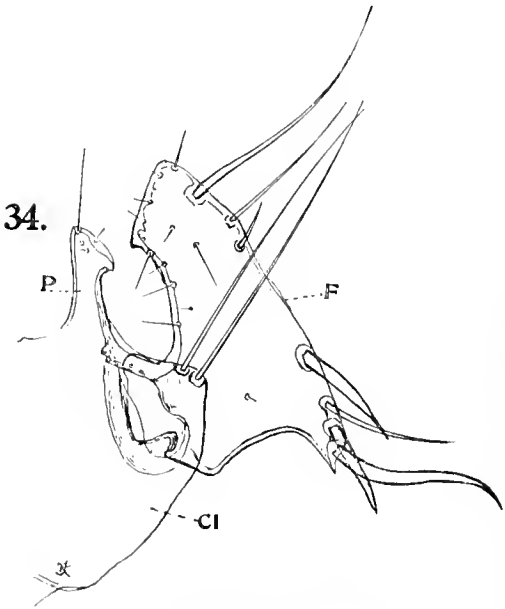


FIG. 34.—*Ceratophyllus euteles* ♂.

2. **Ceratophyllus euteles** J. & R. 1911 (text-fig. 34).

Yunnan: Yun-ning, 21. and 24.iii., on *Dremomys pernyi griselda*, 2 ♂♂, 3 ♀♀.——Szechuan: Mi-hola, 10,000 feet, 25.iii., on *Dremomys pernyi griselda*, 2 ♀♀; Muli, 30.iii. and 6.iv., on *Callosciurus erythraeus gloveri*, 2 ♂♂, 1 ♀; Wu-chi, 16.v., on *Ochotona cansa*, 1 ♂; Yulong-kong, 4.vii., on *Dremomys pernyi griselda*, 3 ♀♀; Omi-shan to Liang-ting-kang, 8.x., on *Tamiops swinhoei*, 1 ♀.

Described by us from 3 ♀♀ obtained by M. P. Anderson 23 miles S.-E. of Ta-tsien-lu on *Sciurotamias davidianus consobrinus*. The species is close to *C. fimbriatus* J. & R. 1921 from the Western Himalayas, the two possibly being geographical representatives of one species. The ♂ of *C. euteles* differs in the clasper being more rounded on the distal side, the acetabular bristles not being placed on a projection, in process P being shorter, the base of F narrower and the apex broader, the stout upper one of the ventral spiniforms of F farther dorsal than in *C. fimbriatus* and stouter, and the long ventral spiniform much longer and first incurved and then excurved. In the ♀ the abdominal sternite VII has the apical margin either slightly incurved or slanting.

3. **Frontopsylla spadix cansa** subsp. nov. (text-figs. 35, 36).

♂♀. Very close to the following subspecies; in ♂ exopodite F apically about one-sixth or one-seventh wider, large apical spiniform longer; in ♀ sinus

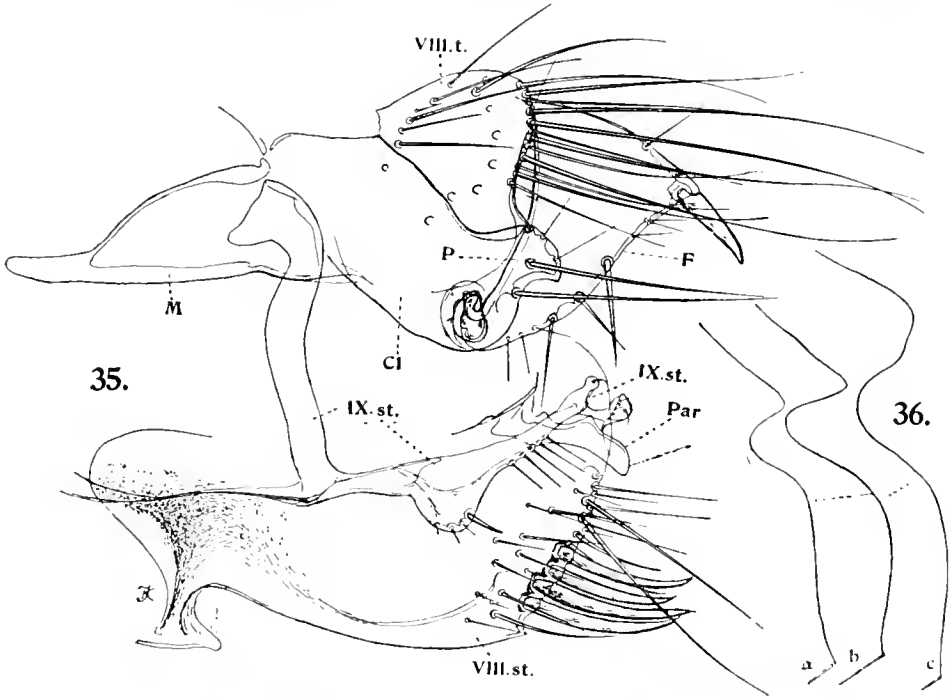


FIG. 35.—*Frontopsylla spadix cansa* ♂. FIG. 36.—*Frontopsylla spadix cansa* ♀.

of VII. st. deeper, the lobe above it therefore longer, in the 2 specimens from Wu-chi much narrower than in the one from Ku-lu (text-fig. 36 *a* and *b* from Wu-chi, *c* from Ku-lu).

Szechuan: Ku-lu, 25.iv., on *Ochotona thibetana*, 3 ♂♂, 1 ♀; Wu-chi, 13. and 16.v., on *Ochotona cansa*, 3 ♂♂, 2 ♀♀.

4. **Frontopsylla spadix spadix** J. & R. 1921.

Yunna: Nguluko, 20.ii., on *Apodemus silvaticus latorum*, 1 ♂.——Described from a single ♀ obtained in Upper Burma. The ♂ is like *F. sp. cansa* except for the small differences mentioned under the preceding subspecies.

5. **Paradoxopsyllus custodis** sp. nov. (text-figs. 37, 38).

♂♀. Near *P. curvispinus* Miyajama 1909, but bristles of hindtarsus prolonged neither in ♀ nor in ♂; hindtibia with 9 dorsal notches, of which the third, sixth and seventh bear one bristle. In ♂ VIII. t. without lateral patch of long bristles, F of even width, strongly curved at base, apical lobe of ventral arm of IX. st. round at apex, irregularly long-ovate, etc. In ♀ VII. st. with small, but distinct, sinus.

Frons with 3 eye-bristles, in ♂ an additional, moderately long one, at antennal groove behind the anterior row, this row consists in ♂ of 6 bristles, in ♀ of 2; on occiput 1, 2, 5, all rather slender with the exception of the ventral one of the posterior row, below this long bristle an additional short one. Chaeto-

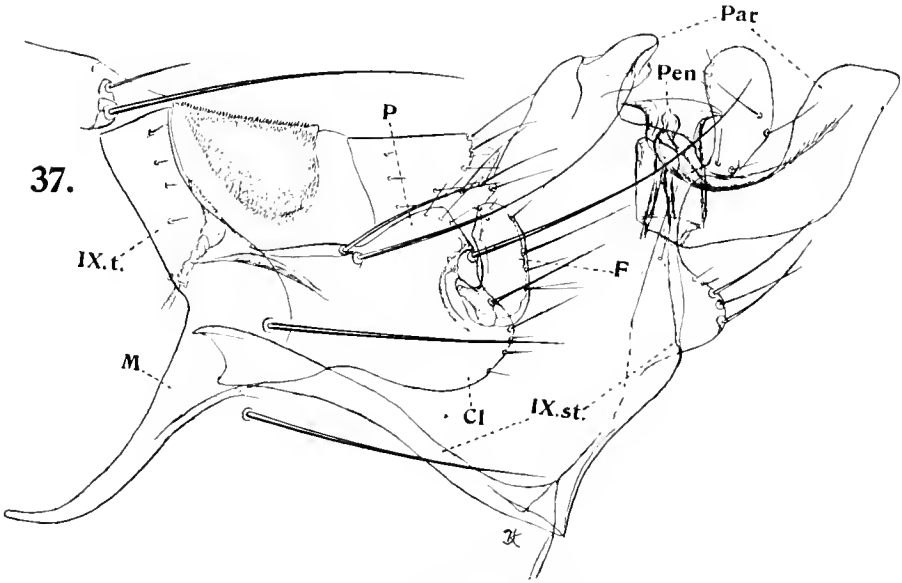


FIG. 37.—*Paradoxopsyllus custodis* ♂.

taxy of thoracic and abdominal tergites nearly as in *P. curvispinus*; in ♂ abdominal tergites I to IV with an apical spine on each side. Bristles on abdominal sternites (the two sides together): in ♂ III 5 or 7, IV 6, V 5, VI 5 or 4, VII 3 or 6, VIII 4 or 5; in ♀ III 13, IV 10, V 6, VI 7, VII 8.

On inside of hindcoxa a submarginal row of 4 to 6 bristles. On hindfemur 1 subapical ventral bristle on both out- and inside (occasionally 2 on outside), and a subbasal lateral bristle on inside. Hindtibia with a subdorso-lateral row of 7 or 8 bristles on outside; longest postmedian dorsal bristle reaching to or a little beyond apex of tibia, longest dorsal apical one extending somewhat beyond subapical notch of tarsal segment I, but not to apex of I, longest of segment I to subapical notch of II, longest of II to apex of III or a very little beyond; at anterior side of segment I 4 or 5 notches bearing bristles, on posterior side 6 (inclusive of apical notch). Measurements: midtarsus, in ♂ 16, 14, 9 or 10, 7 or 7½, 14 or 15, in ♀ 18, 14, 10, 7, 14; hindtarsus, in ♂ 32 or 33, 21, 12, 7 or 7½, 15 or 16, in ♀ 35, 21, 12, 7½, 15.

Modified Segments.—♂. On VIII. t. above stigma 3 or 4 small bristles, below stigma 2 very long ones. Clasper more than twice as long as broad at the narrowest point, distally strongly rounded ventrally, and dorsally enlarged into a stout broad process P, which is obtusely triangular, about twice as broad at the base as high ; angle between manubrium M and inner portion of IX. t. very obtuse ; M slender ; upper acetabular bristle very long and placed well above the acetabulum, lower one very much smaller, about the size of the subdorsal bristles of the abdominal tergites, farther down at margin of clasper 4 smaller bristles. Exopodite F nearly even in width, two and one-half times as long (measured in a straight line) as broad, base strongly curved, apex very obliquely truncate on frontal side ; at posterior margin 4 bristles, not quite equidistant, the third the longest, about the size of the second acetabular. Vertical arm of IX. st. narrow, apex strongly excised, with the posterior angle much more strongly projecting than the anterior ; median lobe of ventral arm broad, rounded, bearing, besides a few small hairs, three long bristles, of which the median one is smallest, these bristles much shorter than in *P. curvispinus* ; apical lobe nearly twice as long as broad, irregularly ovate, apically evenly rounded. Armature of penis large, the end-portion consisting of a large ventral flap, curved up, slightly broadening towards apex, apically strongly rounded dorsally, whereas the ventral apical angle is distinct, but rounded off at tip ; this flap connected with the dorsal armature, consisting chiefly of a finger-like process which projects from the dorsal enveloping sheath. End of ejaculatory duct surrounded by sclerites which form a sort of anvil.——♀. VII. st. with a small sinus below middle of apical margin ; VIII. t. with 2 or 3 bristles above stigma, 1 long and 1 small below stigma, 8 or 9 on lower area, and 2 or 3 inside, of which 1 is marginal. Duct of bursa copulatrix strongly curved in middle, bursa rather large ; head of spermatheca subglobular, slightly depressed posteriorly on upperside, much shorter than the tail.

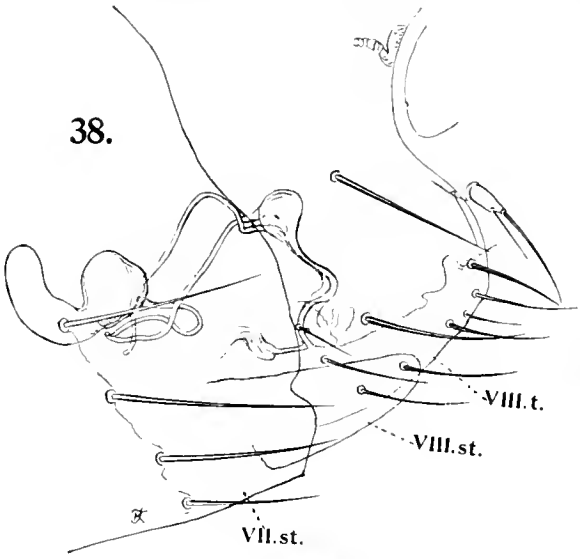


FIG. 38.—*Paradoxopsyllus custodis* ♀.

Length : ♂ 2 to 2·1 mm., ♀ 2·5 mm. ; hindfemur : ♂ 0·38 mm., ♀ 0·40 mm.

Szechuan : Mu-li, 31.iii., and Wu-chi, 15.v., on *Anteliomys custos*, 2 ♂♂, 1 ♀.

Geusibia gen. nov.

♂♀. Near *Ctenophyllus* Wagner 1927, but tibia and tarsal segment I of all legs densely hirsute with minute hairs on the dorsal margin besides bearing long

bristles; segment I of midtarsus one-half longer than II; no antepygidial bristles in ♂, 3 in ♀, VII. t. with median process which is short in ♀, and long in ♂, here reaching a little beyond middle of pygidium; orifice of spermatheca on a prominent cone projecting downwards.

Frontal tubercle prominent, as in *Frontopsylla* Wagner & Joff 1926. Three eye-bristles which are placed in ♂ far in front of the internal genal loop, the ventral one close behind base of maxillary palpus. Proboscis reaching to near $\frac{2}{3}$ of forecoxa in ♂, to $\frac{5}{6}$ in ♀. Both VIII. t. and VIII. st. of ♂ large, the former conical, without a row of marginal bristles, VIII. t. dorso-laterally with an elongate, horizontal, sclerite bearing a condylus (Co), and evidently connecting VIII. t. with the inner surface of VII. t. (text-fig. 39). Process P of clasper as long as F, broad, conical. Apex of vertical arm of IX. st. broad, truncate-emarginate, with the upper and the frontal angles well projecting. VIII. st. on each side with two rod-like incrassations, which unite a basal third of segment, the lower one commencing at ventral frontal angle, the other about at $\frac{3}{4}$ of anterior margin. Hindcoxa (♂♀) slender, one-half longer than broad, in apical half of inner surface small hairs; hindtibia with 8 dorsal notches, the third and sixth bearing a single stout bristle; first pair of plantar bristles of tarsal segment V distinctly bent mediad, as in allied genera.——Genotype: *Geusibia torosa* sp. nov.

6. **Geusibia torosa** sp. nov. (text-figs. 39, 40).

♂♀. On frons an anterior row of 5 or 6 bristles, which are the same in size as the dorsal bristles of the subapical row of the occiput, and a row of 3 large eye-bristles, no additional bristles, but a few small hairs. Occiput with 3 rows.

On pronotum a comb of 20 to 22 spines, usually 21, dorsal and lateral spines shorter than pronotum; a row of 11 or 12 bristles. Meso- and metanotum with two rows and additional small bristles; on mesopleura 10 to 12 long or longish bristles and at and near upper anterior angle about 9 to 15 small ones. Metepimerum in ♂ on one side with 7 bristles (3, 3, 1), on the other with 10 (3, 2, 4, 1), in ♀ varying from 6 to 9 (2, 3, 1—3, 2, 1—5, 3, 1—4, 4, 1). Mesonotum with one short stout apical spine on each side.

Abdominal tergite I with 3 rows and some additional dorsal bristles, the other tergites with 2 rows: in ♂ II (on the two sides together) 20, 16, III 16, 15, IV 15, 16, VII 8, 12; in ♀: II 19 to 27, 13 to 16, III 16 to 22, 13 to 16, IV 12 to 17, 11 to 14, VII 3 to 9, 7 to 9. Tergites I to IV with one apical spine on each side, sometimes the spine missing on one side of IV. Sternite II in ♂ with 1 or 2 minute lateral hairs, in ♀ usually without; the other sternites (on the two sides together): in ♂ III 5, IV 4, V 5, VI 6, VII 7; in ♀ III 4 to 6, IV 4 to 6, V 5 or 6, VI 6, VII 7 to 9, usually 8. Lower and median antepygidial bristles of ♀ long, median the longer, upper one much shorter.

Hindfemur with 2 subapical ventral bristles on outside and with or without a lateral one in basal fourth, on inside 1 subapical bristle, 1 lateral in basal fourth (occasionally 2 or 3 in ♀), ventrally 2 to 5 from subbasal notch to about $\frac{1}{3}$. Hindtibia on outside with a row of 13 to 15 lateral subdorsal bristles, on inside a row of 5 or 6; long postmedian dorsal bristle longer than its distance from apex of tibia, longest apical one $\frac{2}{3}$ the length of tarsal segment I. Longest apical bristle of hindtarsal segments I and II in ♂ extending beyond, in ♀ at most slightly beyond, the apex of the segment following, the longest of III not quite to apex

of IV ; at anterior margin of I about 7 to 10 notches, inclusive of apical one, the bristles in the proximal notches small, on posterior side 5 or 6 notches ; proportional lengths of segments : midtarsus, in ♂ 41, 27, 19, 11, 21, in ♀ 29 to 37, 20 to 25, 14 to 16, 9 to 11, 18 to 20 ; hindtarsus, in ♂ 67, 37, 25, 14, 23, in ♀ 49 to 60, 28 to 34, 19 to 24, 11 to 14, 20 to 23.

Modified Segments.—♂. VIII. t. an equilateral triangle (text-fig. 39) with the apex rounded off, the base (= proximal margin) irregular, and the dorsal

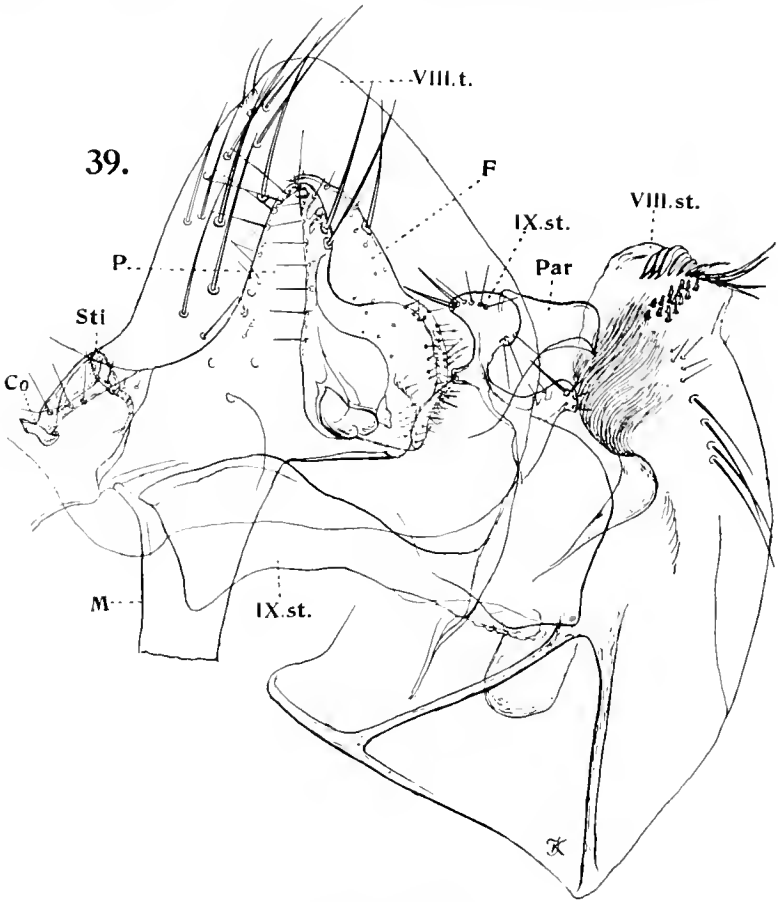


FIG. 39.—*Gensibia torosa* ♂.

and ventral margins somewhat rounded ; it bears about 15 long bristles on the side and 2 small marginal ones dorsally near apex, near stigma a few minute hairs. VIII. st. with a vertical proximal margin which is dorsally incrassate, ventral margin gently rounded, incurved close to apex, dorsal margin deeply incurved beyond middle, the lobe from this sinus to apical margin about one-third longer than broad, dorsally rounded and densely striate subtransversely, apical margin subtruncate, dorsally rounded, very feebly chitinised, bearing 5 spiniforms curved frontad and below them about 6 subspiniform bristles more or less directed ventrad, proximally of these peculiar spines a patch of about 15 very short obtuse conical spiniforms, at three-quarters of sides a horizontal row of 4 or 5 long

bristles, beyond which there is a patch of small hairs ; the rod-like incrassations form an equilateral triangle with the proximal margin ; the segment recalls that of the species of *Ctenophyllus*. Dorsal internal forward projection of IX. t. short ; manubrium (M) of clasper measured ventrally one-fourth longer than its distance from apex of VIII. t. ; about lower two-thirds of clasper strongly rounded-dilated ventrad (i.e. at a nearly right angle to M) and here bearing at and near the margin many minute hairs ; a little more than upper third of clasper represented by a conical process P, which is a little broader than long and bears halfway to apex the two acetabular bristles, apex of process P rounded, at its frontal (= dorsal) side a row of about 10 bristles, some of which are quite small. Frontal side of exopodite F straight, with a regular row of small bristles (7 or 8), posterior margin somewhat rounded in upper half, incurved in middle, but less deeply than P, and excurved and hairy in lower half, the widened hairy portions of P and F feebly chitinized, at posterior margin of F below apical fourth a long bristle. Apex of vertical arm of IX. st. broader than process P is long on posterior side ; ventral arm with a postmedian ventral process similar to the head of a bird, and also similar to the paramere (Par), but only half the size ; the process bears several small hairs and one bristle; apical portion of apical process irregularly ovate, with 3 thin ventral bristles and a row of 6 from upper angle nearly parallel with apical margin, the 2 at upper angle stronger, dorsal margin proximally to these bristles incurved, this sinus proximally bounded by a short truncate projection which bears a thin bristle. X. t. well separated from pygidium by a pale membrane, two and one-half times as long as broad, gradually narrowed from basal fourth to apex, X. st. triangular, upper proximal angle produced frontad, lower strongly rounded, on a level with base of X. t. the sternite more than one-half broader than the tergite, dorsal margin with a row of bristles from beyond middle to apex, 2 long bristles at apex. ——♀. VII. st. with sinus (text-fig. 40), the lobe above the sinus narrow, usually pointed, shorter than the lower lobe, which is very broad, rounded or rounded-truncate. On VIII. t. above stigma 4 to 7 small bristles, below stigma 3 large ones close together, rarely 2, on lower surface 11 to 15, usually 11 or 12, on inside 3, less often 2. X. t. dorsally above base of stylet somewhat concave ; spinose margin of X. st. incurved below middle, with 1 or 2 stout spiniform bristles at the proximal angle. Head of spermatheca not sharply divided from tail, widest towards orifice, rounded dorsally, about one-half longer than broad, tail narrowed

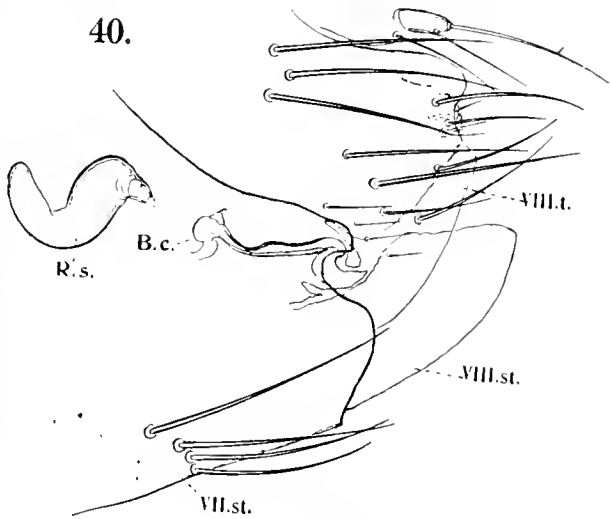


FIG. 40.—*Geusibia torosa* ♀.

at apex, without appendage, orifice on a strongly projecting, more or less conical, prominence; in one of the specimens the spermatheca is much shorter than in the others.

Length: ♂ 3·3 mm., hindfemur 0·59 mm.; ♀ 2·8 to 3·3 mm., hindfemur 0·52 to 0·56 mm.

Szechuan: Wu-chi, 13. and 22.v., on *Ochotona cansa*, 1 ♂, 8 ♀♀.

7. **Neopsylla stevensi** Roths. 1915 (text-fig. 41).

Szechuan: Mu-li, 29. and 31.iii., on *Rattus griseipectus*, 1 ♂, on *Anteliomys custos*, 1 ♀; I-tze, 23.iv., on *A. custos*, 1 ♀.

Described from a single ♂ collected by H. Stevens at the Nepal-Sikkim

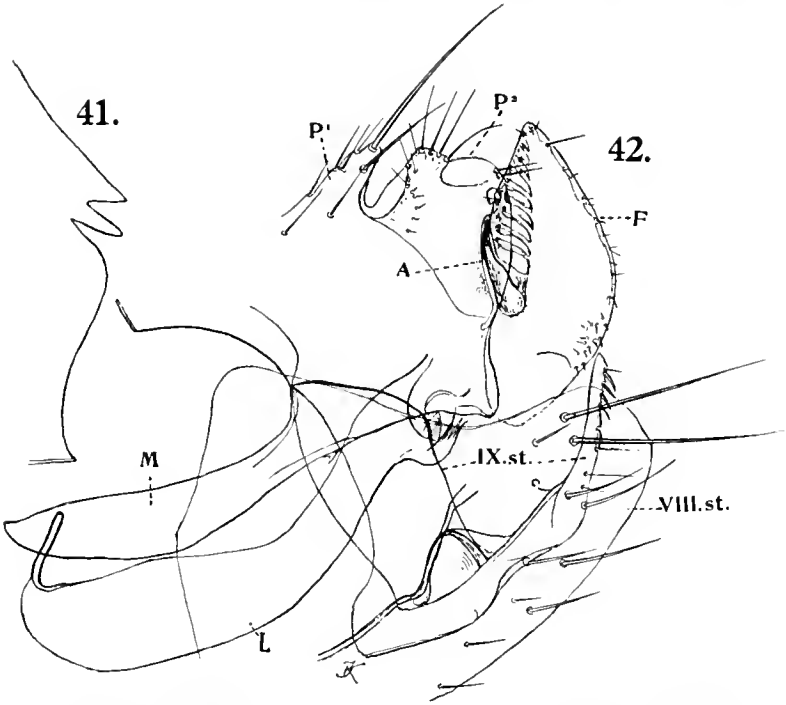


FIG. 41.—*Neopsylla stevensi* ♀. FIG. 42.—*Neopsylla specialis* ♂.

frontier; the present ♂ agrees very well with the type. The ♀ has a peculiar VII. st., the upper angle of this segment being divided into two small lobes as shown in text-fig. 41. Duct of the bursa copulatrix long.

8. **Neopsylla specialis** sp. nov. (text-fig. 42).

♂. Near *N. stevensi* Roths. 1915, but the tail-end very different: Manubrium (M) of clasper very much broader than in that species, widest in middle. Pale marginal area of frontal side of P^2 narrow; P^2 divided apically by a pale rounded space, on the frontal side of this space 4 apical marginal bristles, and from anterior apical angle of P^2 down several small ones, at posterior angle, which is rounded off, 2 or 3 smallish bristles. Exopodite F much broader than in *N. stevensi*, about two and one-half times as long as broad, its posterior margin

almost evenly rounded from base to apex ; acetabulum (A) extending much farther dorsad than in *N. stevensi*. Vertical arm of IX. st. broad, posteriorly straight in lower two-thirds ; horizontal arm narrowing to a sharp point, the apical third being very narrow, at apex a ventral row of 6 spiniforms, the one nearest apex very thin, farther frontad a few thin hairs. VIII. st. with about a dozen bristles, of which the two subapical ones are the longest. Penis-lamina at frontal end with a very prominent rod-like projection directed upwards or bent anad.

Yunnan : Nguluko, 6.ii., and Yung-ning, 19.iii., on *Apodemus agrarius*, 2 ♂♂.

9. **Neopsylla honora** (text-fig. 43).

♂. Likewise near *N. stevensi*. VIII. st. membraneous at apex, the outline of which is uncertain ; 4 long subapical bristles and farther frontad about a

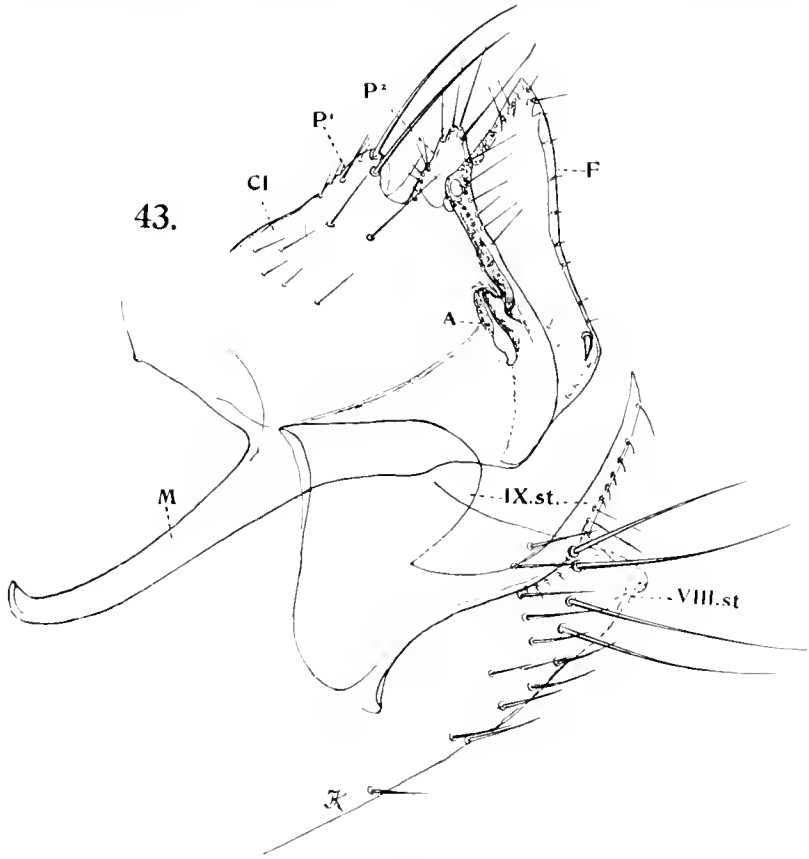


FIG. 43.—*Neopsylla honora* ♂.

dozen shorter ones. Manubrium (M) of clasper of nearly even width, broader than in *N. stevensi*, turned up at tip. Angle between M and IX. t. about 90°, with the tip rounded off. Process P^1 of clasper shorter than in *N. stevensi* and the preceding new species ; process P^2 much narrower than in these species, conical, with 4 bristles at apex, of which the posterior one is the longest ; on anterior side a row of short bristles and at posterior margin a row of 6 somewhat

longer ones. Exopodite F quite different from that of the near allies: posterior margin gradually incurved in middle, more strongly convex at basal third than towards apex, above the point of greatest ventral convexity a short stout pointed spiniform; anterior margin from upper end of acetabulum A to upper anterior angle as long as the oblique apical margin, the acetabulum extending not nearly so far dorsad as in *N. specialis* sp. nov. Vertical arm of IX. st. very broad, its apex anteriorly with a projecting sharp angle, posteriorly very strongly rounded-dilated, the posterior margin meeting the dorsal margin of the ventral arm at an acute angle; ventral arm slender, narrowed to a point, spiniforms replaced by short thin bristles, the one nearest the apex separated from the others by a larger interspace, the row continued frontad by longer thin bristles.

Yunnan: Nguluko, 2.ii., on *Eothenomys proditor*, 1 ♂.

10. **Ctenophthalmus parcus** sp. nov. (text-figs. 44, 45).

♂♀. Stigma of abdominal tergite VIII small. Clasper of the same general build as in *Ct. caucasica* Taschenb. 1880, *Ct. nivalis* Roths. 1909 and a host of others. Proboscis with curved hair at end. No lateral bristles in front of the two rows on meso-metanota; two rows on abdominal tergites, the anterior row very incomplete on the posterior segments.

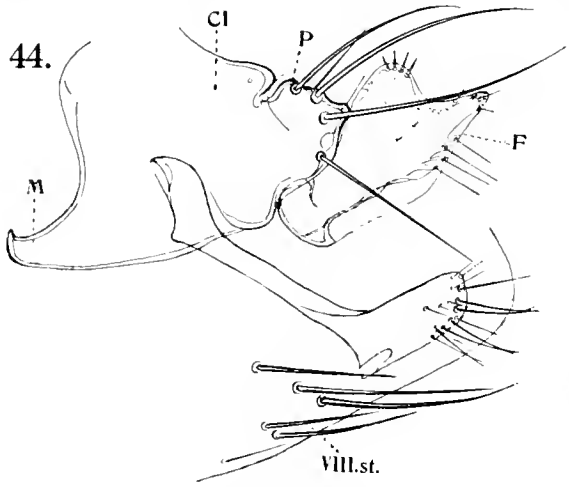


FIG. 44.—*Ctenophthalmus parcus* ♂.

Frons strongly rounded, tubercle a little below middle (the frons measured in a straight line), more ventral in ♀ than in ♂; the usual bristles on frons and occiput, the subapical row of the latter on each side with 5 bristles, a large gap between long ventral one and the next. Proboscis reaching to $\frac{4}{5}$ of coxa.

Pronotum with a comb of 18 to 20 spines, usually 18, which are at least as long as pronotum, usually noticeably longer; a row of 12 bristles; on meso-metanota likewise 12, anterior row 12, in front of it some dorsal bristles on mesonotum; 2 or 3 false spines each side on mesonotum.

Abdominal tergites with 2 rows of bristles, no additional bristles, in ♂ on I and VII a row of 10, in ♀ usually 8, on the other tergites 12, less often 13, in front of this row in ♂ on II about 9, on III 5, on VII usually 2, in ♀ the numbers slightly larger; on sternites II to VIII of ♂ a row of 6, occasionally on one or the other segment 5, before this row 2, on VIII about 6 (on the two sides together), in ♀ the row contains 10, sometimes 11 bristles, before the row the greatest number on VI, namely 5 or 6, on VII only 2 to 4 such additional small bristles.

Hindtibia with 7 dorsal notches, third and sixth with one stout bristle, often

accompanied by a minute one ; long postmedian bristle about as long as first tarsal segment, which is ¾ the length of the tibia.

Modified Segments.—♂. Process P of clasper short and broad, with 4 or 5 long bristles, 3 or 4 of them dorsal, 1 thinner ventral, apical margin produced into a very short truncate cone, which bears a minute bristle and is partly covered by the lower dorsal bristle. Exopodite F broadest at apex, posterior margin convex above middle, above this swelling a submarginal row of 4 or 5 thin bristles, apical margin incurved, the sinus dividing the apex into two projections, posterior projection conical, higher than the anterior one, which is evenly rounded and bears some small pale spiniform bristles, usually 4. Ventral arm of IX. st. about two and one-half times as long as broad, apex gradually rounded from upper angle ventrad, with about 15 pale thin bristles.——♀. VII. st. twice incurved, the sinus shallow, the lobes short, upper one as a rule broader than submedian one, lower sinus oblique, the extent of variability illustrated by text-fig. 45, *a*, *b*, *c* ; the marginal area incrassate as indicated in the figures, with a small frontad projection of the incrassation above lower lobe. Stylet elongate-conical, slender, a little more than thrice as long as broad.

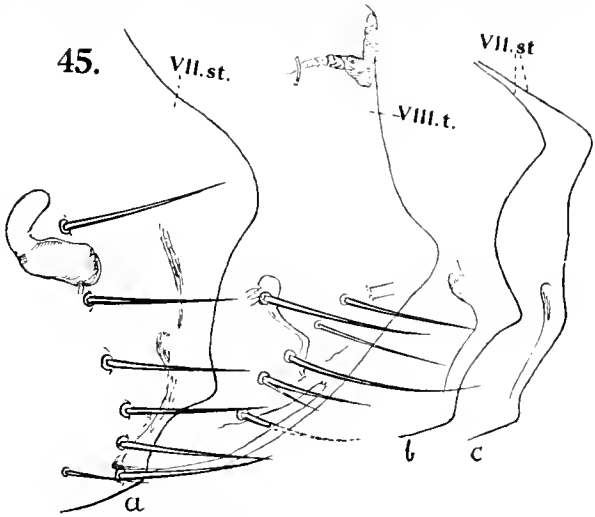


FIG. 45.—*Ctenophthalmus parcus* ♀.

Length : ♂ 2·0 to 2·2 mm., ♀ 2·0 to 2·4 mm. ; hindfemur : ♂ 0·30 to 0·33 mm., ♀ 0·31 to 0·35 mm.

Szechuan : Wu-chi, 15., 16., 18.v., on *Anteliomys custos*, 4 ♂♂, 5 ♀♀.

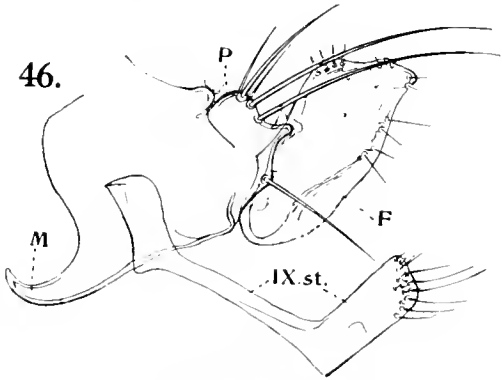


FIG. 46.—*Ctenophthalmus yunnanus* ♂.

11. **Ctenophthalmus yunnanus** sp. nov. (text-fig. 46).

♂. Chaetotaxy as in the previous species, to which the present one is closely related ; abdominal tergites VI and VII without bristles in front of the row. Manubrium of clasper (M) narrower, more evenly curved. Process P differs in being dorsally strongly rounded, the projection of the posterior side much longer and the posterior dorsal bristle placed above the projection. Exopodite F slightly widened from base to apex, apically less wide than in the

previous new species, apical margin but slightly incurved, the anterior rounded apical portion not projecting upwards, the posterior angle slightly projecting posticad, not dorsad. Apex of vertical arm of IX. st. subtruncate, its posterior margin strongly rounded, but much less slanting than in *Ct. parcus* sp. nov.; ventral arm more truncate.

Yunnan: Nguluko, 6.ii., on *Apodemus agrarius*, 1 ♂.

12. **Ctenophthalmus dinormus** sp. nov. (text-fig. 47).

♀. Chaetotaxy as in the ♀ of *Ct. parcus* sp. nov. Margin of VII. st. twice incurved as in that species, but the bays deeper, the lobes therefore longer, the internal incrassation quite different, its frontal margin well defined and nearly parallel with the margin of the segment, below the upper lobe the incrassation forms a narrow, gently curved, posteriorly pointed ridge which inclines downwards posteriorly. Stigma of VIII. t. larger than in *Ct. parcus* and the stylet shorter (cf. text-fig. 47, *a dinormus*, *b parcus*).

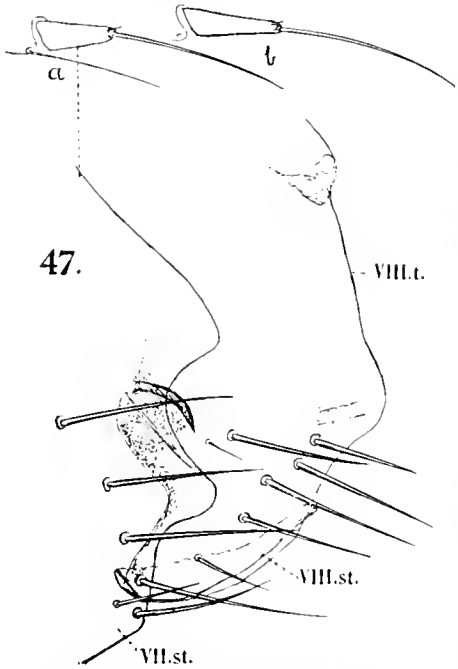


FIG. 47.—*Ctenophthalmus dinormus* ♀; (*a*) *Ct. dinormus*, stylet; (*b*) *Ct. parcus*, stylet.

Szechuan: I-tze Camp, Ku-lu, 23.iv., on *Anteliomys custos*, 1 ♀.

Stenischia gen. nov.

♀. Near *Rhadinopsylla* J. & R. 1912. Spines of genal comb all on genal margin, none at margin of antennal groove; no eye-spine, a narrow short sulcus below margin of antennal groove as vestige of an eye. Episternum of metathorax fused with metanotum; both meso- and metasternum with narrow ventral projection (lateral aspect!). Dorsal margins of abdominal tergites and ventral margins of sternites (text-fig. 48) strongly chitinized from base to the row of long bristles. VII. t. between the two groups of 3 antepygidial bristles with a process bearing 2 spines. Coxae reduced in width, especially hindcoxa, which is twice as long as it is wide at the broadest point, its hindmargin with prominent tooth below basal third, incurved from this tooth to apical lobe. Femora likewise reduced in width.—— Genotype: *Stenischia mirabilis* sp. nov.

13. **Stenischia mirabilis** sp. nov. (text-figs. 48, 49).

♀. Frons with strong tubercle below middle, from the tubercle downward flattened, from base of antennal groove to oral corner a row of 6 smallish bristles, 2 eye-bristles, with a small bristle in between; area between comb and margin of frons long, distance from oral angle to base of ventral spine of comb longer than the distance between the oral margin and the antennal groove. Comb of 5

spines, the upper one quite small, placed at genal angle, there being but an indication of a genal process below this spine, ventral spine about as long as segment III of maxillary palpus, second and third a little broader, second a trifle longer than first, fourth the same in width, but distinctly shorter, a little over twice as long as broad. On occiput 3 rows of bristles, as f. i. in *Rhadinopsylla pentacanthus* Roths. 1897. Proboscis reaching somewhat beyond apex of coxa, with a curved apical hair and segment V the shortest (as in *Rhadinopsylla*).

Fig. 48.—*Stenischia mirabilis* ♀.

Pronotum with a comb of 16 spines and a row of 10 bristles, which are smallish, as on meso- and metanotum and as the longest bristle of the subapical row of occiput. Mesopleura with 3 bristles; internal rod ending dorsally at anterior angle. Mesonotum incrassate at anterior and dorsal margins, the incrassation extending downwards in front of the posterior bristles. Metepisternum (text-fig. 48) large, extending farther dorsad than in the allied genera, with 4 bristles; stigma-cavity rounded, as are those on abdomen; a patch of very minute striation as in *Rhadinopsylla* (and a few allied genera). No apical spine on metanotum.

Incrassation of abdominal tergite I and sternite II less solid than in the other segments ; on tergite II the incrassation triangular (lateral aspect), short, on III to VII longer, more or less strongly widened halfway between base and row of bristles ; the row dorsally oblique, and here behind it a rounded transparent spot, a similar spot on the sternites behind the bristles ; apical spines (on the two sides together) on I 5, II 6, III 5, IV 4, V 6, VI 5, VII 2 ; nearly all the bristles long, no small one in front of the row, 4 or 5 bristles in the row, on VI and VII 3 or 4, on II to V one bristle below stigma, the stigma in the row ; on sternites III to VI 6 bristles (two sides together), VII 7.

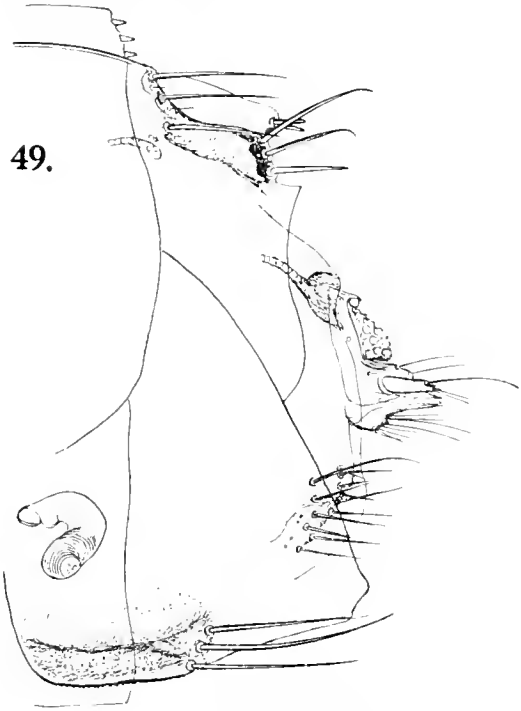


FIG. 49.—*Stenischia mirabilis* ♀.

Forecoxa nearly thrice and mid- and hindcoxa more than twice as long as broad ; anterior sclerite (coxite) of midcoxa posteriorly near apex projecting as a tooth ; in apical half of inner surface of hindcoxa about a dozen short bristles. Mid- and hindfemur almost straight above, about four times as long as broad in middle ; hindfemur on outside with a subventral bristle behind subbasal notch and 2 near apex ; on inside one subapical bristle. All tibiae with 6 dorsal notches, which are deep on hindtibia ; the latter with 6 subdorsal lateral bristles on outside ; longest dorsal apical bristle of hindtibia reaching to subapical notch of tarsal segment I, longest of hindtarsal I beyond subapical notch of II, longest of II to basal third of IV, V in all tarsi with 4 pairs of plantar bristles ; measurements : midtarsus 12, 12, 8, 6½, 15 ; hindtarsus 30, 20, 11, 7, 16½.

Modified Segments.——♀. VII. st. triangular (text-fig. 49), posterior margin slanting to near ventral angle, which is obliquely truncate-emarginate. VII. t. with sharp angle below antepygidial bristles ; the median dorsal portion of VII. t. pale, the two apical spines much longer than the spines of the other tergites. Upper antepygidial bristle longer than the others, the lowest one slightly the stoutest. On VIII. t. no bristles above and below the large stigma ; on ventro-apical area a patch of 9 bristles, nearly all shortish, on inside 3. Stylet nearly cylindrical, its long bristle not quite apical. Spermatheca of the *Rhadinopsylla* type, apex of tail concave on posterior side, below this groove a swelling.

Length : 2·5 mm., hindfemur : 0·28 mm.

Szechuan : Mu-li, 31.iii., on *Anteliomys custos*, 1 ♀.

NOTES ON SIPHONAPTERA.

By KARL JORDAN, Ph.D., F.R.S.

1. **Siphonaptera** *versus* **Aphaniptera.**

THE publication of Wagner's *Katalog der palaearktischen Aphanipteren* (1930) raises the question which name should be used, *Siphonaptera* or *Aphaniptera*. The oldest name given to the Order is *Suctoria* Latr. Priority, however, does not apply to names of Orders. Latreille himself replaced *Suctoria* in 1825 by *Siphonaptera*, and one year later Kirby and Spence, being under the mistaken impression that fleas had rudimentary wings, called the Order *Aphaniptera*. I cannot conceive of any argument in favour of replacing *Siphonaptera* by the younger and inappropriate name *Aphaniptera*.

2. **Arctopsylla** Wagn. and other nomina nuda.

There are in Wagner's Catalogue several NEW names which have not been diagnosed. Such names without descriptions not being valid, it is to be hoped that Professor Wagner will soon supply the want.

3. **"Arctopsylla" ursi** Roths. 1902.

This North American species has been treated in Wagner's Catalogue as being identical with the European Bear-flea. The two species, however, are very different. There is one peculiarity in the morphology of *ursi* which is worth recording here. Whereas in the ♀ of *ursi* and in both sexes of the allied species the club of the antenna consists of 9 separate segments, in the ♂♂ of *ursi* there are only 8 segments, a very interesting feature.

4. **Leptopsylla** *versus* **Ctenopsyllus.**

The name *Ctenopsyllus* was first published by Kolenati in 1857 in a footnote to *Ceratopsyllus*, where he says: ". . . sollte eigentlich *Ctenopsyllus* heissen, von χτεις, χτενός der Kamm, weil sie Kämme, sogenannte Ctenidien am Hinterrande des Pro- oder Metanotums und oft auch an einigen Rückensegmenten tragen. . . ." A name published in this way is as valid from the date of publication as if Kolenati had said: I name the comb-bearing fleas *Ctenopsyllus*. A very large number of names have been published conditionally. Phrases in meaning like the following are quite frequent: "If the differences here mentioned should turn out to be constant, the name *X—us* would be appropriate." "If it is necessary to place these species into a separate genus, I propose *B—ta* for them." A name published with a description or as an alternate name is valid whatever phraseology is employed. Authors, however, should not use the conditional in Nomenclature; give a name straightforwardly, or don't mention a new name; reservations in this connection are really ludicrous. *Ctenopsyllus* having been published in 1857, Kolenati could not validly employ the same word for another genus. This second *Ctenopsyllus*, Kolenati 1863 nec Kolenati 1857, was renamed *Leptopsylla* J. & R. 1911. Wagner is wrong in ignoring *Ctenopsyllus* Kolenati 1857.

5. The Genotype of **Tetrapsyllus** Jord. 1931.

In NOV. ZOOL. xxxvi. p. 135 (1931), we read after the description of *Tetrapsyllus*: "Genotype: *Parapsyllus cocyti* Roths. 1904." This was a slip made when typing the manuscript; it should read *corfidii*, as is abundantly evidenced by the description, the name and the reference to Section E of *Ectoparasites*, i. p. 365, where a diagnosis (but no name) was given. In typing I wrote (unintentionally !) *cocyti* instead of *corfidii*, both names being familiar to me and both beginning with "co." *P. cocyti* does not belong to Section E.

6. **Rhopalopsyllus bohlsi** Wagn. 1901 (= **Rh. bernhardi** J. & R. 1908).

The species was described by Wagner from a single ♀ collected by Dr. Johannes Bohls during his stay in Paraguay. In our paper of 1908 we identified with it a series of specimens likewise from Paraguay which seemed to agree rather closely with Wagner's figure. The type of *bohlsi* is in the Hamburg Museum (ex coll. Poppe) and has very kindly been lent to me for comparison with our material of *Rhopalopsyllus*. We find that the specimen agrees best with the females we placed with *Rh. bernhardi* J. & R. 1908. Therefore, the species we have described and figured in *Ectoparasites*, i. p. 333, no. 9, text-fig. 348 (1923), as *Rh. bohlsi* is *Rh. bohlsi* J. & R. nec Wagner and requires a name: *Rh.* **rimatus** n. nov., type ♂ from Sapucay, Paraguay.

7. **Rhopalopsyllus gwyni** Fox 1914.

In *Ectoparasites*, i. p. 334 (1923), we said under *Rh. bohlsi*: "*Rhopalopsyllus gwyni* Fox (1914) appears to us to be *Rh. bohlsi*; but we cannot be sure, as we have not yet seen any of the original five specimens of *gwyni*." I have examined the type and a paratype in the U.S. National Museum, and B. J. Collins, of the U.S. Health Service, has lately sent us several examples of the same species. The specimens examined prove to us that *Rh. gwyni* is different from all the *Rhopalopsylli* we have in the collection.

Rh. gwyni ♂ has the VIII. st. much less deeply incised ventrally in the middle line, and the IX. st. is much narrower than in *Rh. rimatus* and *Rh. bohlsi* (cf. above, No. 6). In these characters the ♂ comes nearest to *Rh. platensis* J. & R. 1923, in which, however, the basal abdominal sternite bears more numerous lateral bristles and the bristles of the hindtarsus are much longer, in both sexes. The abdominal bristles are in ♂ and ♀ of *Rh. gwyni* fewer than in *Rh. platensis*, and there is a large interspace between the subdorsal lateral bristles of the hindtibia and the subventral ones. In the ♀ the abdominal sternites IV to VII have no small bristles in front of the row; and there are on the outer surface of tergite VIII from the stigma downwards about 30 or fewer bristles inclusive of small ones (but exclusive of the bristles at the inner side of the apical margin), there being in front of the vertical row a group of 4 or 5 small bristles, recalling *Rh. bohlsi* Wagner (= *bernhardi* J. & R.). In the latter species, however, the bristles on VII. st. of ♀ are much more numerous, the segment bearing 24 or 25 inclusive of some small ones, as against 13 to 17 in *Rh. gwyni* ♀.

8. **Aphropsylla** gen. nov.

Aphropsylla Jord., *Verh. Ent. Kongr. Zürich*, p. 600, No. 16 (1926) (*nom. nud.*).

When I described early in 1925 several new genera of fleas, I intended to publish also a diagnosis of *Archaeopsylla*, the description of which formed already

part of the (incomplete) manuscript of a Monograph of the Siphonaptera. I supply here the diagnosis : Near *Archaeopsylla* Dampf 1908. Eye not marginal. Praeoral tuber absent. Metepisternum larger than in *Archaeopsylla*, anteriorly fused with sternum. Antepygidial bristles very close to margin, but separated from it. Large flap of ♂-genitalia not dilated ventrad, without fringed appendage ; anal tergite not bifurcate. In ♀ VII. st. not incised ventrally in middle line ; head of spermatheca subglobular ; apical margin of dilated portion of VIII. t. sinuate, angle above sinus acute. Genotype : *A. conversus* J. & R. 1913 (as *Ctenocephalus*).——Here also belongs *Ctenocephalus wollastoni* Roths. 1908.

9. **Trichopsylla** Kolenati 1863.

The genus was described as having no ctenidium on head and thorax. Six species were placed into it, 4 of which Kolenati did not know and were only doubtfully referred to *Trichopsylla*. Of the remaining 2 one, *T. cuspidata* Kolenati = *T. erinacei* Bouché, has a reduced ctenidium on head and prothorax, overlooked by Kolenati, and, moreover, is the type of *Archaeopsylla* Dampf 1908. To select *cuspidata* as genotype of *Trichopsylla* and thereby render *Archaeopsylla* a synonym would be a piece of mere mischief. There remains the species identified by Kolenati with *Pulex penicilliger* Grube 1852. At that time nobody knew what *penicilliger* really was. In fact, Wagner, when re-examining Grube's specimens, found (1898) that they belonged to two species, one a *Ceratophyllus*, to which Wagner restricted the name *penicilliger*, and the other an *Amphipsylla*. The name *penicilliger*, therefore, covered in 1863 three species :

(1) *penicilliger* Grube ♂, a *Ceratophyllus*, as restricted by Wagner 1898 ;
(2) *penicilliger* Grube ♀, an *Amphipsylla* ; and
(3) *penicilliger* Kolenati nec Grube, error of determination, figured by Kolenati.

Kolenati did not know (1) and (2), for both species have a very distinct pronotal comb in contradiction to the diagnosis of *Trichopsylla*. Therefore, species (3), which conforms to the diagnosis and is figured by Kolenati, is the only one common-sense could regard as the genotype : *T. penicilliger* Kolenati nec Grube, err. determ. This species we have identified with *T. homoeus* Roths. 1906. Therefore :

Trichopsylla Kolenati, genotype *T. homoeus* Roths. 1906 (= *penicilliger* Kolenati 1863, nec Grube 1852).

Syn. : *Oncopsylla* Wahlgr. 1903, and *Chactopsylla* Kohaut 1903.

10. **Ceratophyllus mustelae** Wagner 1898 (ex Schilling indescr.) *versus* **C. mustelae** Dale 1878.

In the *Katalog d. pal. Aphanipteren*, p. 9 (1930), Wagner employs the name *C. mustelae* Schilling 1857 for the species named *turbidus* by N. C. Rothschild in 1909. Schilling (i.e. in Gurlt's list of parasites) did not give any description ; he merely said on " Mustela." As any number of different fleas may accidentally occur on " Mustela," the bare statement is quite insufficient for rendering the name valid. Being a *nomen nudum* it cannot be employed as from 1857. In 1898 Wagner adopted the name *mustelae* Schilling and gave a description ; the name, therefore, became valid in 1898. Unfortunately, in 1878 Dale, indepen-

dently of Schilling, had already employed the name for a different species, as proved by a specimen so named in Dale's collection. This *C. mustelae* Dale 1878 is a synonym of *P. penicilliger* Grube 1852 as restricted by Wagner in 1898. Therefore, we have :

(1) *C. mustelae* (Dale 1878) = *P. penicilliger* Grube 1858, Wagner 1898.
(2) *C. mustelae* Wagner (ex Schilling indescr.) 1898 preoccupied by *C. mustelae* Dale 1878 ; and
(3) *C. mustelae* Wagner 1898 nec Dale 1878 requiring a name, which was supplied by N. C. Rothschild in 1909 ; *C. turbidus* Roths.

SOME NEW AFRICAN ANTHRIBIDAE.

By KARL JORDAN, Ph.D., F.R.S.

1. **Sphinctotropis grossa** sp. nov.

♂♀. Much larger than *S. albofasciata* Kolbe 1895, and the angle of the pronotal carina a little larger than 90° and rounded off.

Rostrum uneven, punctate like frons, pubescent clay-colour inclusive of half the frons; median carina more distinct in middle, widened at base, disappearing at some distance from apical margin, second carina irregular, broad, forming a hump at base of rostrum, disappearing on widened apical portion of rostrum, genal groove deep. Frons two-fifths the width of apex of rostrum, a trifle narrower in ♂ than in ♀. Occiput with a luteous spot at eye and a faint indication of a median spot. Eye elliptical, anteriorly and beneath with a very thin border of white pubescence. Antenna in ♂ longer than the body, in ♀ reaching to near middle of elytra; in ♂ III twice as long as the frons is broad, IV to VII a little longer, VIII like III, club narrow, IX one-fourth shorter than VIII, nearly as long as X + XI. X half the length of XI, not quite twice as long as broad; in ♀ III one-fourth shorter than the frons is broad, as long as IV, V to VIII slightly shorter, VIII one-fourth shorter than III, IX and XI as long as III, X twice as long as broad, five-eighths the length of IX.

Pronotum coarsely punctate, somewhat uneven, but without tubercle, a median vitta luteous, interrupted or constricted before middle, a spot on disc each side of vitta more or less joined to it, and about six small and diffuse spots on lateral surface, all luteous, the black areas partly with sparse white pubescence, the ends of the median vitta also white; carina medianly angulate as in the other species of this genus, lateral angle over 90°, the apex rounded off, lateral carina straight; before middle of disc a slight depression, but no transverse channel. Scutellum white.

Elytra strongly punctate-striate, on basal third a number of luteous spots shaded with white, more or less confluent, similar spots on apical declivity, and a few on side; behind middle the usual white and luteous dentate band from stripe I to VI or VII. Pygidium punctate, olivaceous grey, in ♂ one-seventh shorter than broad, gradually narrowed, rounded at apex, in ♀ one-third shorter than broad, subtruncate.

Underside with large punctures, pubescent grey, spotted with clay-colour, on side diffuse black patches. Mesosternal process broad, truncate, apical margin faintly bisinuate, the lateral angles slightly projecting; pubescence in and behind middle of metasternum silky, there being in ♂ a bilobate patch (similar to a poplar leaf) of longish ecru-drab hair, the point of the patch directed forward, the edges paler. Abdomen of ♂ medianly flattened. Two rings on tibiae and the apex of tarsal segment I white.

Length 8·4 to 8·7 mm.

Nigeria: Ibadan, 24.vi.24 (F. D. Golding), one ♂, type; Ibadan, 12.vii.22, one ♀.

2. **Sphinctotropis helictus australis** subsp. nov.

♂♀. Frons narrower than in *S. h. helictus* Jord. 1911 from West Africa ; in the ♂ the eyes nearly contiguous. Clay markings in middle of pronotum and at suture of elytra reduced.

Natal : Malvern, iv.97, three ♂♂, one ♀.

3. **Sphinctotropis iniqua** sp. nov.

♂. Similar to *S. rhodesiensis* Jord. 1922 (described as a *Litocerus*), the clay markings of upperside reduced, whereas the subapical ring of the tibiae and the apical clay pubescence of tarsal segment I are extended. Frons narrower. Median carina of rostrum less elevate, the median anteapical depression deeper. Occiput with a small spot at eye. Pronotum more coarsely punctate, antemedian sulcus replaced by a broadish depression, behind this depression a rounded hump ; lateral angle of carina rounded as in *S. rhodesiensis*. Elytra more coarsely punctate-striate, the subbasal swelling higher, the depression behind it deeper, the alternate interspaces higher, the postmedian transverse band broken up and inconspicuous. Apical half of segment I of all tarsi clay-colour.

Tanganyika Territory : Sukarre, Usambara, one ♂.

4. **Litocerus quinarius** sp. nov.

♂. Pronotum with five clay vittae and anal sternite with two apical tubercles.

Black, pubescent olivaceous grey, marked with clay-colour. Rostrum and frons rugose, the former with clay median stripe, median carina indicated, not distinct, second carina broad at base, almost effaced by the rugosities of the derm, disappearing on a level with the obtuse angle of the cariniform margin of the antennal groove. Frons a little broader than segment II of antenna is long. Eye narrowly margined with clay-colour on frons, the border widening on occiput, cheek clay-colour below eye, whitish towards occiput, this patch not connected with the dorsal border of the eye. Antenna rufous, the club blackish, reaching beyond middle of elytra, segment III about one-third longer than IV, IV to VII nearly equal in length, VIII a little longer and broader, IX as long as VII, X one-fourth shorter, two and one-half times longer than broad, XI a trifle shorter than IX.

Pronotum with a few shallow punctures at side, before middle a feeble transverse depression, but no groove ; of the five yellowish stripes the median and lateral ones broader than the intermediate one, dilated at the carina, narrower than the interspaces, intermediate stripe less conspicuous, its pubescence not being dense, connected at carina with median stripe.

Elytra evenly punctate-striate, a patch occupying the basal depression in front of subbasal swelling, a lateral spot behind shoulder, some indefinite spots behind subbasal swelling, and a more distinct one a little farther back on suture, a band curved from middle of suture obliquely backwards to outer margin along which it extends to apex, and some spots on apical declivity, of which a linear one in third interspace is conspicuous, all clay-colour and more or less diffuse. Pygidium as long as broad, evenly rounded at apex.

Anal sternite depressed along middle, the obtuse ridge bounding the depression on each side ends at apex of segment with a small tubercle. Bases of

femora, tibiae except apices, and tarsal segments III and IV rufous, upperside of tarsi sparsely grey, as are the femora and tibiae.

Length 6·4 mm.

Uganda : Entebbe, 9.ii.14 (C. C. Gowdey), one ♂.

5. **Androceras rhodesi** sp. nov.

♂. The first species of this Indian genus received from Africa. Short, compact, mottled with whitish grey, creamy buff and blackish brown. Rostrum, lower portion of frons and cheek creamy buff. Rostrum as long as broad, at apex depressed and obtusely sinuate, with a rather deep and broad longitudinal impression, which disappears on apical flattened area and gradually becomes shallower towards base, which it does not reach, on each side of this median area, from eye to near middle, a prominent, but obtuse, somewhat curved carina, and at eye a short deep lateral groove the upper margin of which is continuous with a thin, feebly raised carina that distally runs close along upper edge of antennal groove. Frons only one-sixth the width of apex of rostrum. Eye large, very little convex. Antenna black, base rufescent, VII pubescent white on upperside except base, II quite short, as long as broad, III to VII gradually broader, III one-ninth longer than IV, IV, V and VI practically of even length, VII a trifle shorter, VIII to XI forming a broad club which is a little longer than V to VII together, not quite thrice as long as broad, proportional lengths of VIII to XI 10, 7, 5, 8, measured along the middle, X more than twice as broad as long, underside of club with long soft hair (club of ♀ presumably consists of three segments, without wool).

Pronotum half as broad again as long, conical from carina, but side slightly rounded before middle, puncturation denser laterally than medianly, the punctures rather small and shallow, their hindmargins somewhat granuliform, disc slightly depressed transversely behind apex and before carina, for the greater part dark brown shaded with grey, at apex on each side two oblong luteous spots, before carina another luteous spot in position intermediate between the two apical ones, and near median stripe a diffuse spot, in middle of apex diffuse grey pubescence followed by a luteous spot in subapical depression, a grey spot in middle and thence to scutellum a stripe mostly composed of grey pubescence ; dorsal carina rather strongly convex, but rounded-concave in middle, here placed at one-fourth from extreme base to apical margin, curved forward at side in a wide even arc to two-fifths of side (measured from extreme base). Scutellum white.

Elytra one-fifth longer than broad, broader than prothorax, strongly punctate-striate, with the interspaces more or less convex ; for the greater part grey, on subbasal swelling a brown irregular patch extending to shoulder, in middle from side to suture a brown area broadest at side, somewhat indefinite except at suture, more or less mottled with grey, on apical declivity a few small brown markings, one or two of them transverse, about a dozen creamy buff dots from shoulder to suture behind subbasal swelling and on apical declivous area ; basal margin curved forward and strongly raised, forming a transverse rounded tubercle. Pygidium grey mottled with brown, a little broader than long, evenly rounded at apex.

Underside densely whitish grey, with indications of brown markings on meso-metasternites and abdomen ; the latter flattened in middle, anal segment

medianly truncate. Femora and tibiae dark rufous brown, with greyish pubescence, tibiae with a subbasal and a postmedian diffuse brown spot on upperside, apex black like the tarsi, bases of segments I, II and IV white.

Length 5 mm., width 3·2 mm.

South Rhodesia : Hillside, Buluwayo, 12.ii.16, two ♂♂, type in Mus. Brit.

6. **Apatenia elongata** sp. nov.

♂. Much more elongate than any known African species of this genus. Brownish black, with some luteous grey markings, the derm under these markings rufous. Rostrum pubescent clay, three-fifths broader than long, rugate-punctate, with a median carina which nearly reaches to apical margin. Frons and occiput concave, the former half as wide as the rostrum, both blackish, with a little luteous pubescence at eye. Antenna rufescent brown, pale rufous at base, segments III to VIII gradually decreasing in length from 0·4 mm. to 0·2 mm., club less loose than in the other African species, its segments being less narrowed at base and X comparatively short. IX one-third longer than III, X one-half IX, somewhat broader than long, XI as long as III. Eye elongate-elliptical, more than half as long again as broad.

Pronotum only one-sixth broader than long, in dorsal aspect straight at side from dorsal carina to apex of lateral one, thence gradually narrowed, strongly and densely punctate, a rounded median impression from carina to before middle, in centre of depression convex, on side several small luteous spots, diffuse, derm under the larger spots without large punctures ; carina slightly concave in middle and narrowly interrupted, flexed forward at side in a very broad curve without indication of an angle.

Elytra two-thirds longer than broad (measured in a straight line), strongly punctate-striate, with interspaces III and V convex, especially posterior half of III, shoulder, interspace V from near base to beyond middle and III in and behind middle with some luteous grey spots, at apex a transverse grey band indented at apical margin, on suture and in alternate interspaces indications of black dots. Pygidium coarsely punctate, almost semicircular, being one-third broader than long and evenly rounded.

Underside coarsely punctate, abdominal segments I to III with a lateral space which has no large punctures, but is minutely punctate, middle of abdomen somewhat flattened. Tibiae with two grey rings on a rufous ground, tarsi more or less rufous, with sparse grey pubescence.

Length 5·7 mm., width 2·3 mm.

South Rhodesia : Vumbu Mts., 5,700 feet, ii.26, two ♂♂.

7. **Atophoderes dorsalis chiromelas** subsp. nov.

♂. Broader than *A. d. dorsalis* Qued. 1886, segment IX of antenna less narrowed towards base, II of tarsi black with a few grey hairs at apex.

East Africa : Zambesi, one ♂.

In Nov. Zool. xxi. 1914, p. 228, line 2 from below I said that *A. acutangulus* Kolbe 1895 was based on a worn ♀ of *A. dorsalis* ; it should read *anatinus* Kolbe 1895 instead of *acutangulus*. The statement, *l.c.*, p. 229, line 23 from above, that the anal sternite has the angle produced into a sharp tooth is erroneous ; what appeared to be a tooth is really a tuft of hair matted together.

8. **Atophoderes miriclava** sp. nov.

♂. Near *A. acutangulus* Kolbe 1895 ; much larger, median carina of rostrum vestigial, club of antenna quite different.

Black, the derm under the grey spots rufescent. Rostrum longer than in the other known species, half as long again as broad, densely rugate-punctate, median carina indistinct, apex strongly flattened, apical margin slightly sinuate in middle, underside likewise very densely rugate-punctate, flattened, with an indication of a very thin median carina, channel from antennal groove backwards vestigial, lobes of labiophore strongly rounded at apex. Eye one-seventh longer than broad. Antenna black, reaching to base of elytra, distal segments of shaft more or less grey, III one-third longer than IV, V shorter than IV, VI to VIII about as long as broad, much shorter than in the ♂ of *A. acutangulus* and *A. dorsalis*, club very broad, IX a little broader than long, asymmetrical, base rounded, apex rounded on posterior side, produced distad on anterior side and pointed, X shorter and narrower than IX, but similar in shape, XI small, irregularly elliptical, more rounded on anterior than on posterior side, nearly one-half longer than broad, upperside of club convex, underside flattened and woolly.

Pronotum variegated with grey, very densely reticulate-punctate, slightly depressed at carina, basal angle as acute as in *A. acutangulus*, more produced than in that species ; dorsal carina almost evenly convex from side to side.

Elytra punctate-striate, the alternate interspaces convex, especially III and V, and tessellated with grey and black, in middle of each elytrum a small diffuse black patch.

Underside and legs essentially as in the allied species ; tarsal segment III black.

Length 10·2 mm., width 4·5 mm.

South Rhodesia : Sawmills, 31.xii.21, one ♂.

9. **Phloeobius amplus** sp. nov.

♂. A large and very broad species ; rostrum with broad median impression, pronotum with a transverse row of five tawny tufts, elytra with numerous tufts.

Black, pubescent grey, shaded with drab and tawny. Rostrum with three broad longitudinal depressions separated by two obtuse, but prominent, carinae which do not reach apex of rostrum and disappear at frontal side of eyes ; pubescence of rostrum and head grey mixed with tawny. Frons a little less than one-half the width of the rostrum (measured in front of the antennae). Antenna grey inclusive of club, IX about as long as IV, X two and one-third times as long as broad, XI longer than IX, slender, tapering to a point, with the tip curved.

Pronotum grey densely mixed with tawny, the rugosities of the derm more or less concealed by the pubescence, a deep and broad depression from carina to middle flanked by an obtusely cariniform swelling which is placed halfway between lateral carina and middle, a transverse row of five tawny tufts in middle, the one on the swelling largest ; apical margin slightly incurved in middle ; dorsal carina broadly concave in middle in conformity with the median depression, lateral angle less than 90°, lateral carina reaching to middle, gradually raised anteriorly, forming a strong projection which is sharply cut off, in dorsal aspect the side of prothorax from this projection to basal angle somewhat

incurved, from the projection forward rounded and strongly slanting to neck, the prothorax not being dilated behind apical transverse lateral channel.

Elytra only one-third longer than broad, depressed before middle, strongly declivous at apex, grey mixed with tawny, side from below shoulder to beyond middle and upwards about to third row of punctures darker, appearing more tawny from front, more drab from behind, rather sharply limited by a postmedian oblique row of tufts; at beginning of apical declivity a diffuse blackish patch across suture to second row of tufts, subbasal swelling distinct, basally brown, interspaces III, V and VII with a row of tawny tufts, postmedian one of III blackish, two in I on subbasal swelling likewise blackish, the number of tufts varying slightly, III usually bearing 9 and V and VII 7 or 8, the tufts in the antemedian depression small. Pygidium nearly semicircular, evenly rounded.

Pubescence on side of sterna somewhat clayish; tibiae with two diffuse brown spots.

Length 11 mm., width 5 mm.

South Africa: Spelonken, one ♂, type, in Mus. Brit.; also two ♂♂ without locality at Tring.——I am indebted for most of the species here described to Sir Guy A. K. Marshall.

FURTHER RECORDS OF ANTHRIBIDAE FROM JAVA.

By KARL JORDAN, Ph.D., F.R.S.

1. **Mecotropis aulax** sp. nov.

♂♀. In colour and size very close to *M. similis* Jord. 1898, also from Java; upperside more distinctly dotted with brown and at sides more extended brown, tarsal segment I more extended grey. Median apical carina of rostrum posteriorly ending abruptly, and the median sulcus commencing with a rounded cavity, the two oblique apical carinae higher in between the antennal grooves than in *M. similis*; the median sulcus gradually disappearing posteriorly between the eyes, whereas in *M. similis* it is continuous with a slight, almost cariniform, elevation. On prosternum, *M. similis* bears in front of each coxa a curved groove, the two grooves not being joined across the middle; in *M. audax* there is a nearly straight deep groove across middle, curved back at sides. Mesosternal process broader than in *M. similis*. Anal sternite of ♂ truncate, the angles projecting each as a short blunt tooth.

Length (head excl.) 15–23 mm.

Java: Senggoro, Passeroean (A. Koller), 1 ♂, type; Pradjeken, 1 ♀; Kendeng Mts., 1 ♂; Malang (Royer), 1 ♂; Bajoetendoel, vii.31 (H. Lucht), 1 ♂ in coll. Dr. Kalshoven.

2. **Cedus diversus** Jord. 1911.

Java: south of Malang, 7.xi.29 (Dr. L. G. E. Kalshoven), 1 ♂; Preanger (P. F. Sijthoff), 1 ♂.——The species occurs also in South India, Assam, Formosa.

3. **Hucus pallidus** Jord. 1926.

Java: Lembong, ix.24, 2 ♂♂, 1 ♀.——In one ♂ the upper surface much more extended pinkish grey, the greater part of the elytra being this colour.

4. **Nessiodocus festivus** sp. nov.

♀. Rufescent brown, densely pubescent grey, from frons across pronotum to apex of elytra a brown stripe divided by a median line on pronotum and sutural line on elytra.

Rostrum one-half broader than long, with a shallow apical depression, without carinae, but in front of eye near side with a narrow groove, and a second groove between eye and antenna, both grooves curved, side of rostrum angulate at antennal groove, the angle nearer to base of mandible than to eye. Frons as broad as the upperlip, brown like occiput, eyes margined with grey. Antenna very pale rufous, club slightly darker, shaft thin, segments III to VIII gradually and rather slightly decreasing in length, III a little shorter than the frons is broad anteriorly, VIII conical, not quite thrice as long as broad, club sublinear, less than twice as broad as VIII, IX a little shorter than III, nearly twice as long as broad, X a little longer than broad, XI elongate-ovate, slightly shorter than IX.

Pronotum gradually narrowed from angle of carina to apex, one-half broader than long, rather densely punctate, apical margin feebly incurved behind eye; the grey median vitta anteriorly about half as broad as each brown stripe and posteriorly about as broad as a brown stripe, the two brown stripes together with the grey median line one-fourth broader than the grey area from lateral carina dorsad; towards side two small spots one behind the other; dorsal carina slightly but distinctly convex from side to side, very faintly straightened in middle, lateral angle 90°, with the extreme tip rounded off. lateral carinula directed somewhat downward, forming a very obtuse angle with the lateral carina and a slightly smaller obtuse angle with the dorsal carina, lateral carina reaching only very little beyond one-third from angle to apical margin.

Elytra one-half longer than broad, punctate-striate, the grey sutural stripe extending into third interspace before middle and again before apical declivity, the suture itself brown from before middle to apex, this brown line slightly widened anteriorly; the grey lateral area extending at base dorsad to fourth line of punctures and to eighth line farther back, the seventh interspace occupied by a grey line. Pygidium not quite twice as broad as long, gradually narrowed, truncate, with the angles rounded, the apical margin double, there being a dorsal and a ventral transverse edge, the upper one slightly raised.

Underside uniformly grey; legs as pale as the antenna, tibiae and tarsi slender, segment I in foretarsus longer, in mid- and hindtarsus somewhat shorter than II to IV together, being in foretarsus more than half as long as the tibia.

Length (head excl.) 4·5 mm., width 2·1 mm.

Java: Semarang, in Teak Forest, 21.i.31 (Dr. Kalshoven), 1 ♀.

5. **Nessiara stomphax stomphax** Jord. 1928.

Java: Buitenzorg, 30.iv.25 (Kalshoven), 1 ♀.——The first ♀ I have seen of this subspecies; it agrees in colour with the ♂.

6. **Nessiara tessellata** Eyd. & Soul. 1839.

Java: Semarang, 26.xii.30 (Verbeek), 1 ♀.——The first specimen recorded from the island. We have no specimens of this species from Sumatra and Borneo, but quite a series from Indochina, the Philippines, Celebes and Toekan Besi, also some examples from Saleyer, Bali, Sumbawa, Balabac and Perak.

7. **Exillis longicornis** Pascoe 1860.

Java: Bagor, 6.iii.29 (Verbeek), 1 ♂.——Evidently much rarer than in Sumatra and Borneo.

8. **Xylinades tardus** sp. nov.

♂. Near *X. rugiceps* Jord. 1895, from Siam, North India, Tonkin and Cambodja; eye more deeply sinuate, segments of antenna and tarsi shorter. Differs from *X. aspericollis* Jord. 1895, the range of which extends from Tonkin to Java, in the antenna, pronotum and tarsi being shorter and the abdominal segment IV laterally pitted with large punctures.

Clayish markings of upperside essentially as in *X. aspericollis*, consisting on pronotum of some dots and on elytra of an anterior and a posterior area of short streaks.

Head and rostrum coarsely and rather densely punctate ; margin of apical sinus of rostrum slightly elevate, from its middle extends an oblong, flattened carina which is about twice as long as broad ; from posterior end of this median carina at each side of median groove a cariniform swelling runs towards occiput, where it disappears, this submedian carina broad, not constricted, but made uneven by numerous large punctures ; on frons a smooth narrow median carina ending on a level with the anterior margin of the eye and here joining the submedian carina. Segment III of antenna not longer than II, about one-tenth longer than broad, III to VIII gradually increasing in width, VIII about one-fourth broader than long, club ovate, proportional lengths of the three segments 11 : 7 : 14, at apex of IX a grey patch on inner side, not on outer, apex XI strongly rounded on outer side, more obtuse than in *X. aspericollis*, VI to X underneath with short woolly hair.

Pronotum one-twelfth broader than long, densely and coarsely grooved, also on median apical area, the interspaces confluent as more or less parallel ridges, the lateral ridges parallel with the lateral carina.

Elytra shorter than in *X. aspericollis*, the rows of punctures and tubercles naked, the interspaces between the rows densely tomentose, forming regular stripes, sutural stripe and alternate ones broader than the others. Hairs on pygidium long and scattered.

Prosternum swollen in front of coxa, here a little shorter than the coxa is wide. Mesosternal process lanceolate, distinctly widened in middle. Sides of abdomen with large punctures, restricted on I to III to apical half, while on IV the punctures are numerous from base to apex. Tibiae strongly compressed, broad, dorsally longitudinally impressed, but not deeply, dorsally densely covered in basal two-thirds with scale-hairs, in apical third much less densely with longer scale-hairs, outer and inner surfaces with a sparse covering of long scale-hairs, those near apex being more like thin bristles. Segment I of tarsi short, strongly widened at apex, not longer than the tibia is apically wide, dorsal groove of II smaller than in *X. aspericollis*. No blackish markings on tibiae and abdomen.

Length (head excl.) : 12 mm., width 4·8 mm.

Java : Depok, 7.i.27, 1 ♂.

9. **Dendrotrogus angustipennis** Jord. 1895.

Java : Gedangen, Semarang (Verbeek), 2 ♂♂, 3 ♀♀ ; Pemalang and in Teak Forest of Semarang, 5.ii.31 (Kalshoven), 2 ♀♀.——The ♂ is easily distinguished from the allied species by the first and second abdominal segments bearing each a hairy median patch. The ♀ can be recognized by the rostrum being medianly distinctly depressed and its apical sinus more sharply triangular ; the scale-hairs on the legs much narrower than in *D. hypocrita* Jekel 1855.

10. **Paraphloeobius sodalis** Jord. 1923.

W. Java : S. Pr. Djampang, ix.30 (Dr. Kalshoven), 1 ♂.——Known from Perak and Borneo.

11. **Tropidobasis bigemmis** spec. nov.

♂. Very pale rufous (immature), with a grey pubescence, which is denser at the apical margin of pronotum, on scutellum, around the black patch on each elytrum and on the underside ; disc of pronotum blackish from side to side ; on

each elytrum before middle a nearly circular, sharply defined black patch, a little longer than broad, separate from suture, about as long as its distance from basal margin and as broad as its distance from lateral margin, very conspicuous.

Sinus of eye more dorsal than the margin of antennal groove, the interspace between this cariniform margin and the dorsal lobe of eye broader than antennal segment II. Antenna somewhat shorter than the pronotum is long dorsally, segments III to VII nearly equal in width, slightly decreasing in length, VIII wider, forming part of the club, which is compact, compressed, elongate-elliptical, about twice as long as broad, a little longer than III to VII together, broadest at apex of X, IX gradually widened, somewhat broader than long, X transverse, slightly wider at apex than at base, nearly twice as broad as long, XI truncate at base, rounded at sides, acuminate at apex, a little wider than long.

Pronotum one-fifth shorter than broad. Elytra not quite one-half longer than broad (11 : 8), feebly punctate, not striate. Pygidium semicircular, very nearly twice as broad as long. Tarsi brownish except at base, segment I less than twice as long as the tibia is broad.

Length (head excl.) : 3 mm.

Java : Pemalang (Verbeek), 1 ♂.

The pair of sharply defined black spots on the elytra render this species easy to distinguish from all the others described.

12. **Autotropis modesta limbata** Jord. 1924.

Java : Gedangen, viii.31 (Dr. Kalshoven), 4 specimens.——Not previously recorded from Java.

13. **Ozotomerus rugicollis** Jord. 1895.

Java : Gedangen, Semarang, 21.viii.31 (Verbeek), 2 ♂♂.——Also 2 ♂♂ from North Celebes (Dr. Leefmans). All 4 specimens small and narrow.

14. **Misthosima crucifera** Jord. 1904.

Java : Semarang, Teak Forest, 12.iv.31 (Kalshoven), 1 ♂, 1 ♀ ; Walikoehoen (Verbeek), 2 ♀♀.——In this species the pronotum is longitudinally plicate ; we have it from New Guinea, Aru, Philippines and Banguey.

15. **Araecerus cautus** spec. nov.

♂. In shape and colouring similar to *A. corporaali* Jord. 1924, but the angle of the pronotal carina smaller than 90°, distinctly produced backward, and the lateral carina more strongly curved than in *A. corporaali*. The underside of the abdomen flattened, segments I to IV raised each side along this flattened median area, segment V much less raised than the preceding ones, whereas in *A. corporaali* ♂ V bears on each side a strong apical hump and therefore appears apically sinuate, which is not the case in the new species.

Java : Mt. Arjoeno, 3,000 feet, i.1896 (W. Doherty), 2 ♂♂.

NEW ORIENTAL ANTHRIBIDAE.

By KARL JORDAN, Ph.D., F.R.S.

1. **Mecotropis gardneri** sp. nov.

♂. Black, pubescent grey, upperside variegated with brown and black, abdomen spotted with black. Rostrum with median groove extending on to frons; eye entire. Near *M. vitticollis* Jord. 1895.

Median groove of rostrum continued as a narrow channel across the transverse interantennal elevation; the lateral carina which runs from posterior portion of cariniform margin of antennal groove in the direction of dorsal margin of eye very low, not nearly reaching eye; no carina between this cariniform swelling and the median channel; sides of rostrum between eye and antennal groove coarsely punctate, without carinae and channels; but the subventral sulcus running from eye to short gular transverse groove accompanied by a carina, the sulcus itself narrow. Labiophore with a cariniform median swelling at apex. Occiput on each side with an irregular brown longitudinal smudge extending on to frons.

Pronotum a very little longer than broad, with a few granules, apex and base grey, before middle a transverse row of 4 grey spots, 5 others at transverse carina, these diffuse, the median one anteriorly forked, the lateral one narrowed anteriorly, produced forward to or to near lateral antemedian spot; carina slightly interrupted in middle. Scutellum grey, a little longer than broad.

Elytra a little over one-half longer than broad, flattened from base to beyond middle, grey, variegated with brown, a basal spot above shoulder and a smaller limbal one behind shoulder velvety black, a triangular area behind shoulder from near side-margin to near suture brown, diffuse, suffused with grey, a broad postmedian area from side to side brown dotted with black and grey, posteriorly incurved on each elytrum and here rather well defined, the apical area grey, with a blackish spot on suture at a short distance from apex. Pygidium grey, with a small black lateral spot and a large ferruginous and black apical one.

Prosternum without transverse groove. Mesosternal process triangular. Abdomen with two rows of irregular black spots on each side. Tibiae rufous, apices black, grey pubescence slightly denser beyond middle. Tarsi black, claw-segment rufescent, I and IV grey, black at apex, underside of II and III with tawny bristles, which are longer on II of mid- and hindtarsus.

Length 12 mm.

India: Anamalai Hills, Madras, 2,400 feet, 6.v.30 (J. C. M. Gardner), one ♂, ex rotten wood. Named in honour of the collector.——I am indebted for the majority of the species described in this paper to the Entomological Department of the Forest Research Institute at Dehra Dun.

2. **Xylinades tamilanus** sp. nov.

♂♀. Close to *X. aruensis* Jord. 1895. As in that species, the dorsal carina of pronotum not joined to the lateral one; the tubercles on pronotum and elytra much more numerous than in *X. aruensis*, and the pubescence of the

tibiae consists, like that of the tarsi, of very fine silky hairs instead of clay-coloured scale-like hairs similar to those of the elytra and the apex of the femora.

Upper- and underside with the usual covering of yellowish, broad, short, scale-like pubescence, which, on the pronotum, often forms a median stripe. The black areas of the elytra consist of a dorsal basal patch, a large lateral median one reaching to near the suture, an anteapical transverse band, usually interrupted on each elytrum, and a sutural apical spot. On side of abdomen indications of black patches.

Sinus of rostrum round, the edge raised, but not sharp, in middle a short oblong carina, flattened ; a short distance behind it commences gradually a long, narrow, median carina, which disappears on occiput ; at each side of this carina a submedian one, which is broader and commences farther forward on a level with the end of the short apical median carina, being constricted between the antennal grooves and farther back rendered irregular by a variable number of large punctures and longitudinal grooves. Eye sinuate. Segment III of antenna longer than IV, VIII longer than broad, club compact, elliptical, nearly exactly twice as long as broad, IX as long as XI, X one-fourth the length of IX, no woolly hair on underside in ♂.

Pronotum very little longer than broad, broadest before middle, rough with confluent grooves, the tubercles of the centre also confluent, lateral tubercles in rows more or less parallel with lateral carina, apical median area uneven with grooves and ridges.

Dorsal rows of punctures of elytra with prominent rounded tubercles from suture to shoulder and to near apex, the lateral and posterior tubercles smaller than the dorsal ones.

Abdominal sternite IV with many large punctures on side. Dilated apex of femora not (or very little) wider vertically than middle of femora.

Length 8–11 mm.

Ceylon, a small series.

3. **Xylinades parumsignatus** sp. nov.

♂. Near *X. adductus* Jord. 1923 from Tonkin. As in that species, the numerous grooves of the pronotum large, well defined and not confluent. Frons without median carina ; antenna shorter than in *X. adductus*, segment VIII broader than long ; abdominal sternites II and III without large punctures ; base and apex of tibiae rather broadly black ; pronotum and elytra with fewer luteous markings than in *X. adductus*.

Apical sinus of rostrum shallow, its margin transversely convex, forming a roof over the sinus ; the middle of this convex area continued backwards as a short obtuse carina, which is anteriorly curved sidewards and disappears on occiput ; frons with several longitudinal, irregularly elliptical, grooves in middle area and smaller punctures laterally, without the definite median carina of *X. adductus* ; rostrum and a stripe above eye luteous. Segment III of antenna somewhat longer than IV, III to VIII gradually shorter and broader, VIII much broader than long, club compact, ovate, not elliptical, one-half longer than broad, relative lengths of its segments 10, 4, 9, underside of VII to X woolly (♂).

Pronotum with a luteous elongate spot on each side of middle in anterior half and one or two lateral dots near apex, apical marginal area smooth, with

some small punctures, rest of surface pitted with large grooves, most of the raised interspaces forming fairly regular hexagons.

Elytra with few luteous spots : one at base above shoulder, another lateral behind shoulder, several in basal half of third and fourth interspaces, one lateral behind middle, a number from side to suture before apical declivity and one or two before apical margin ; the tubercles separating the seriated punctures more or less conspicuous between shoulder and suture, posteriorly gradually lower in the dorsal rows, hardly at all raised in the lateral rows and in apical third of elytra. Pygidium with luteous spot in middle.

Widened proximal portion of metathoracic episternum with hardly any punctures ; abdomen black, with luteous lateral spots more or less in two rows, side of segments II and III with a few small punctures, punctures of IV larger, but not so large as in *X. adductus*. Base and apex of tibiae black ; luteous pubescence of all tibiae like that of apex of femora, consisting of flattened, lanceolate, hairs ; tarsal segment I about as long as the tibia is broad at apex, groove on upperside of II extending to near apex.

Length 15 mm.

India : Bhutan, one ♂.

4. **Zygaenodes longiceps** sp. nov.

♀. Upperside isabella-grey, dotted with brown, underside whitish grey. Eye sessile, convex, circular, with sinus towards antenna ; occiput slightly depressed along eye, but no eye-stalk. Rostrum one-sixth shorter than apically broad, basally somewhat convex, in middle slightly depressed transversely, apex truncate, feebly undulate ; the whole face white, with the brown derm showing through here and there, derm of apex pale rufous ; interspace between antennal groove and eye about as wide as segment II of antenna is long. Frons one-fourth narrower than the apex of rostrum ; distance from culmen to culmen of eyes almost one-half wider than apex of rostrum. Occiput slightly convex, faintly depressed in middle, with a large brown spot on each side of the middle line. Shaft of antenna very pale rufous, club blackish, segment III nearly one-half longer than IV, IV to VIII slightly decreasing in length (proportions of III, IV, VIII = 10, 7, 6), IX and X as long as VIII, X one-third shorter.

Pronotum very pale rufous, mottled with white and brown pubescence, side and a median area extending from base to middle of disc brown mottled with luteous grey, disc slightly depressed at carina, lateral carina very short, a mere spur directed obliquely ventrad.

Elytra pale rufous, with a mixture of white and luteous grey pubescence interrupted by black or brown dots, alternate interspaces slightly convex, especially the third, basal swelling distinct, its pubescence forming a crest, from this crest to base a black line, in middle of third interspace a black spot nearly twice as long as broad. Pygidium somewhat longer than broad, rather strongly granulate, gradually narrowed to apex, which is evenly rounded ; grey, with a brown arc from side to side at base.

Legs very pale rufous, middle of femora and tibiae, extreme tip of tibiae and the greater part of the tarsi brownish (probably blackish in more mature specimens).

Length 3·2 mm.

India : Sappal, Palghat, Madras, 1,700 feet, 21.vii.30 (J. C. M. Gardner), one ♀, ex dry stems.

5. **Hucus insulanus** sp. nov.

♂. Near *H. limbatus* Jord. 1928 from Tonkin, but the frons only as broad as the first segment of the antenna. Brown, upperside pubescent grey marked with brown, side of head and underside of thorax and abdomen white. Segments I and II of antenna pale rufescent, brown at apices, III the longest, III to VIII decreasing in length, III half as long again as VIII, club sublinear, as long as VII and VIII together, IX twice as long as broad, X a little longer than broad, XI slightly longer than IX.

On each side of disc of pronotum two brown stripes which, together with the grey line that separates them, are narrower than the grey median area ; lateral carina straight. Scutellum white, contrasting with elytra and pronotum.

Elytra less flattened than in *H. limbatus*, with the following brown markings : a stripe from shoulder to near apex, separate from lateral margin, a spot on subbasal swelling, a larger one in middle of suture continued back- and sidewards by some isolated dashes, and an M on apical declivity with its central angle and the two arms directed obliquely back- and sidewards and joining the sublateral stripe. Pygidium a little longer than in *H. limbatus*, not quite one-half broader than long.

The extreme tip of the femora and a median spot, the apex of the tibiae, and all the tarsi blackish ; upperside of tarsi grey, foretarsus less flattened and broadened than in *H. limbatus*.

Length 3·3 mm.

North Andaman, 11.iii.30 (Dr. C. F. C. Beeson), one ♂.

6. **Nessiodocus celsus** sp. nov.

♂. Black, with sharply defined white markings on upperside ; rostrum and underside white. Twice as long as broad, almost oblong.

Rostrum a little longer than broad, broadest at apex, slightly depressed below middle, punctate, especially in basal two-thirds, apical margin with shallow sinus, from near eye a short carina along a narrow groove, the carina disappearing on dorsal side of antennal groove, which is placed halfway between eye and mandible ; upper edge of antennal groove slightly projecting as an angle and continued apicad as a feebly raised carina. Frons not quite one-third the width of the basal half of the rostrum (between the carinae). Outline of eye circular, but flattened towards cheek, with narrow white margin. Occiput black, this colour extending to middle of frons. Antenna black, with hardly any grey pubescence, segment I claviform, much shorter than III, II a little longer than broad, III to VIII almost equal in length, VIII somewhat broader than the preceding ones, IX as long as III, twice as long as broad, flattened, almost gradually widened to apex (X and XI missing).

Prothorax five-ninths broader than long, broadest before middle, very densely granulate, apex truncate, carina obtusely angulate backwards in middle, then slightly convex, flexed forward in a broad curve, but the lateral carina nearly straight and somewhat directed downwards, reaching a little beyond middle, lateral carinula directed slightly downwards, forming an obtuse angle with the lateral carina, subbasal transverse carinula distinct laterally, but not beaded ;

the area between the dorsal carina and the lateral one white, this patch occupying a very little more space than half the black median area, the white patch continuing obliquely forward, gradually narrowing, and joining the white dorsal border of the eye, the dorsal margin of this white stripe somewhat incurved, the black median area therefore laterally rounded, being a little narrower at apex than at base. Scutellum black, transverse.

Elytra very densely granulose, punctate-striate, slightly depressed behind scutellum and basal margin; the latter rounded and turned up; subbasal swelling faintly indicated; the suture not depressed; the following markings white: a basal sutural X expanding at basal margin to near shoulder and posteriorly to fourth line of punctures, a small lateral median spot extending up to seventh line of punctures, another limbal spot before apical declivity, connected with a dorsal one, the two forming a narrow, irregular, oblique band which reaches to second interspace. Pygidium nearly semicircular, being almost twice as broad as long, sparsely pubescent grey, except a transverse basal band which is white. White pubescence denser on sides of sterna than in middle, sparse on legs; foretarsus (♂) flattened and broadened, segment I three-fifths the length of the tibia, one-fifth longer than II to IV together; hindtibia about one-fifth shorter than foretibia.

Length 4·7 mm.

India: Sunksal, S. Kanara, 5.vi.30 (B. M. Bhatia), one ♂.——Very conspicuous in the collection on account of the strongly contrasting black and white colouring.

7. **Nessiodocus castus** sp. nov.

♀. Chestnut-brown, densely pubescent grey, upperside marked with dark chestnut-brown, antenna and legs very pale rufous.

Rostrum two-thirds broader than long, with shallow apical depression, side feebly angulate at anterior corner of antennal groove; this groove small, semilunar, nearer to base of mandible than to eye. Frons narrow, little broader than segment II of antenna; occiput chestnut-brown, this area strongly narrowing frontad, but not extending down to rostrum. Antenna reaching to end of metasternite (if head is in vertical position), I and II short, II to VIII thin, III nearly twice as long as IV, IV to VIII slightly decreasing, IV one-half longer than VIII, but apically narrower than VIII, club sublinear, as long as III to VI together, IX as long as III, X one-fourth longer than VI, being about one-third shorter than IX, IX thrice as long as broad, XI as long as IX, but a little broader.

Pronotum not quite one-half broader than long, gradually narrowed apicad from angle of carina, punctate, slightly rugose, appearing almost smooth on account of the fairly dense pubescence, apical margin feebly incurved behind eye, a chestnut-brown median stripe from apex to base, constricted in middle and at carina, narrower at apex and base than before and behind middle, here about one-fourth narrower than the grey lateral area between brown stripe and lateral carina; dorsal carina distinctly convex, but somewhat concave in middle, lateral carina slightly convex dorsally, continuous with the basal lateral carinula, which is directed downwards, the angle of the carina smaller than 90°.

Elytra a little less than one-half longer than broad (10 : 7), punctate-striate, with the following chestnut-brown markings: a spot on subbasal swelling, another at shoulder, a longer oblong one at side behind shoulder, a streak each

before middle of fourth and sixth interspaces, an irregularly elliptical lateral patch behind middle connected with an irregularly rounded larger patch on apical declivity which extends from near suture to eighth line of punctures, suture narrowly brown from near middle to near apex. Pygidium granulose, very little broader than long, strongly and gradually narrowed, apex evenly rounded, marginate.

Tibiae and tarsi slender, foretarsal I five-sevenths the length of foretibia and two and one-half times as long as II and III together.

Length 4·6 mm.

Philippines : Surigao, Mindanao, one ♀.

8. **Androceras pulcherrimus** sp. nov.

♂♀. Black, upperside spotted with ochraceous-buff and lavender-grey, underside lavender-grey, with ochraceous-buff lateral spots encircled with black. Nearest to *A. laticornis* Jord. 1928 from Tonkin, but segment III of antenna much longer and narrower, elytra with hardly a trace of a depression along the suture, etc.

On rostrum from eye forward a groove, the inner edge of which is cariniform, but much less raised than in *A. laticornis*, the area outside the groove flattened and ochraceous-buff, some of this pubescence also dorsally on basal area and a spot of the same colour above and below eye ; median line of base of rostrum more or less smooth. Antenna black, segment VII of ♂ and VII and VIII of ♀ pubescent-white, some traces of such pubescence also on other segments ; in ♂ III about one-third longer than IV, both these segments gradually narrowed from base, the apex compressed, IV to VI equal in length, but V and VI strongly compressed from base, less narrowed towards base than the preceding segments, VII somewhat narrower and shorter than VI, VIII strongly widened towards apex, triangular, one-fourth shorter than VII, but much broader, IX likewise triangular, with the sides more rounded than in VIII, almost as broad as long, X twice as broad as long, less than half the length of IX, and a very little narrower than IX, XI as long as broad, narrower than X, but a little longer, more strongly rounded on innerside (antenna directed backwards) than on outer, apex slightly acuminate on outerside ; in ♀ shaft not dilated, III one-third longer than IV, this one-fourth longer than V, VI like V, VII a little shorter than VI, VIII a little shorter than VII, IX as broad as long and as long as III, triangular, X as broad as IX, but only half its length, being a little over twice as broad as long, XI narrower than X, a little longer, broader than long, apex rounded, with a slight angle on innerside.

Pronotum slightly rounded-angustate from carina forward, punctate, on each side two apical, two antebasal and two basal ochraceous-buff spots surrounded by black, variable in size and sometimes one or the other pair confluent, on each side of middle traces of such spots ; dorsal carina feebly angulate in middle, lateral angle obtuse, rounded off, lateral carinula horizontal, directed towards lateral carina, which it does not reach.

Scutellum grey. Elytra cylindrical, posteriorly very feebly flattened at suture, subbasal callosity scarcely indicated, with four irregular and variable transverse series of ochraceous-buff spots extending obliquely from suture backwards to outer margin, the spots partly confluent, the rows being basal, antemedian, median and anteapical, the anteapical spots forming a more or less

continuous band curved backward at suture, at apex a more or less tridentate spot, the lavender-grey spots in the black spaces variable in size and shape, some broken up into small linear spots in two of the three specimens. Pygidium lavender-grey, with an ochraceous-buff spot each side encircled with black.

Legs lavender-grey, a subapical spot on femora and a subbasal one on tibiae ochraceous-buff surrounded with black, apex of tibiae and tarsal segment I as well as nearly the rest of the tarsi black.

Length 2–4 mm.

Darjiling: Lopchu, 5,000 feet, iv. 30 (J. C. M. Gardner), 2 ♂♂, 1 ♀, ex *Alnus nepalensis*.

9. **Ulorhinus brachystomus** sp. nov.

♂. Near *U. bilineatus* Germ. 1818 and allies; distinguished by the rostrum being very short and the pygidium long. Blackish brown, slightly rufescent in places, especially at base of antenna, shoulder and on legs, variegated with grey. Rostrum three times as broad as long, a median impression occupying base and frons, within the impression a small carina. Frons not quite one-third as broad as the rostrum; head, rostrum and pronotum coarsely punctate. Antenna short, very little longer than rostrum is broad, III as long as VII and VIII together, IX a little longer than broad, strongly narrowed to base, X transverse, rounded at sides and base, with the apical margin somewhat incurved, XI narrower, ovate, as long as broad.

Prothorax as long as broad, with a whitish median stripe posteriorly, three grey linear spots at apex, a diffuse grey patch in centre, and small dots at sides; carina evenly curved forward at side, not forming an angle.

Elytra much longer in proportion to their width than in *U. bilineatus*, tessellated with grey and black, in third interspace the usual whitish linear spot. Pygidium one-fourth longer than broad, gradually, but not strongly, narrowing to apex, which is round, the centre of the apical margin projecting as a small tubercle.

Underside coarsely punctate, sides more densely pubescent white than middle, in middle of metepisternum a brown spot. Tibiae grey near base and apex, segment I in foretarsus shorter than IV, in hindtarsus longer than IV, claw of hindtarsus as in ♂ of *U. bilineatus* without tooth, outer claw shorter, more curved and basally more swollen than inner claw.

Length 4 mm., width 1·6 mm.

India: Manor Road, N. Thna, Bombay, 5.viii.30 (Dr. C. F. C. Beeson), one ♂.

10. **Raphitropis incanus** sp. nov.

♂. Near *R. marchicus* Herbst 1797, narrower, antenna much longer. Upperside rufescent brown and pubescent grey, underside densely grey. Frons and base of rostrum convex; frons a little less than half as wide as rostrum. Antenna pale rufous, gradually more brown towards apex, nearly twice as long as the pronotum, segment III as long as IV, a little longer than V and VI, these longer than VII and VIII, III almost twice the length of VIII, IX as long as III, X one-fifth shorter, XI elliptical and one-fifth longer than III.

Pronotum: on each side of middle a smaller antemedian and a larger postmedian brown patch, the four patches separated by a grey Greek cross of which the transverse bar is broader than the vertical one, the brown patches finely

shaded with grey as on elytra ; dorsal carina broadly and rather deeply concave in middle, not angulate, convex near side, lateral carina a short and somewhat oblique projection, lateral carinula slightly but distinctly directed downwards. Scutellum grey.

Elytra punctate-striate, with the basal margin rounded, brown, with the grey markings nearly as in *R. indicus* Jord. 1925 ; base of suture and basal margin, an oblique irregular band, broken up into spots, from below shoulder to middle of suture, with a branch across suture behind subbasal swelling, a similar band from middle of lateral margin to suture at beginning of apical declivity, and apex of elytra grey, these grey markings ill-defined and probably variable.

Legs pale rufous (the specimen is not quite mature), femora except base and apex, apical half of tibiae or more, and the tarsi except base with a brown tint, probably dark brown in mature specimens.

Length 2 mm.

India : Jajra, Dehra Dun, 27.vii.30 (J. C. M. Gardner), one ♂.

Eye more prominent than in *R. indicus*, rostrum longer, antenna much shorter, lateral carina of pronotum longer and less oblique, and basal margin of elytrum somewhat rounded.

11. **Araecerus candicans** sp. nov.

♀. In the absence of the male this conspicuously coloured species is best placed in *Araecerus*, though its colouring and some details of structure indicate that it represents a new genus.

Black, pubescence greyish white, faintly yellow above, upperside with black markings. Head and pronotum densely reticulate, the meshes not impressed as punctures. Rostrum short, apex truncate, slightly rounded. Sinus of eye barely indicated. An elongate median spot on occiput black, extending on to frons, about as broad as the white border of eye. Antenna rufescent brown, segments I and II very pale rufous, III one-half longer than IV, twice as long as VIII, the proportional lengths of III to VIII being 8, 6, 5, 4, 4, 3½, of club 6, 5, 6½, IX and X nearly symmetrical, XI elliptical.

Pronotum conical, slightly constricted before base, feebly rounded in middle, not quite one-half broader than long (13 : 9), disc occupied by a large transverse black patch which has four projections forward and opposite them four backward, the projections being about as broad as the white interspaces between them and reaching neither apical margin nor carina, in the black patch a sublateral white dot ; carina dorsally slightly concave, laterally flexed forward in a broad and nearly even arc, lateral carina oblique, almost straight, extending to one-third of side. Scutellum white.

Elytra one-half longer than broad, rather strongly punctate-striate, interspaces densely granulose, subbasal swelling and depression behind it feebly indicated, apical declivity gradual, before middle an irregular transverse black band, produced forward between lines II and IV, the projection not reaching basal margin and extending somewhat backward near suture, the suture remaining nearly entirely greyish white, a large postmedian black patch sublaterally connected with antemedian band, the connection made irregular by the invasion and inclusion of grey markings, the postmedian patch produced backwards near suture and again sublaterally, the two branches nearly meeting before apex ;

the black areas bear small grey dots. Pygidium as long as broad, triangular, with the apex pointed and turned up ; grey, apex pale rufous, at some distance from apex a short median carina ending abruptly.

Underside coarsely punctate ; apices of abdominal sternites I, II and III and bases of II, III and IV laterally depressed, the transverse depressions especially conspicuous between I, II and III, anal segment triangular, narrow at apex, but not sharply pointed, the greater part pale rufous. Legs pale rufous, evenly but not densely grey ; apices of tibiae and the tarsi darker, foretarsal segment I one-fifth shorter than II to IV together.

Length 3 mm., width 1·9 mm.

North Andamans, 6.v.29 (B. M. Bhatia), one ♀, ex *Terminalia procera*.

SPOLIA MENTAWIENSIA: GEOMETRIDAE.

ADDENDA.

By L. B. PROUT.

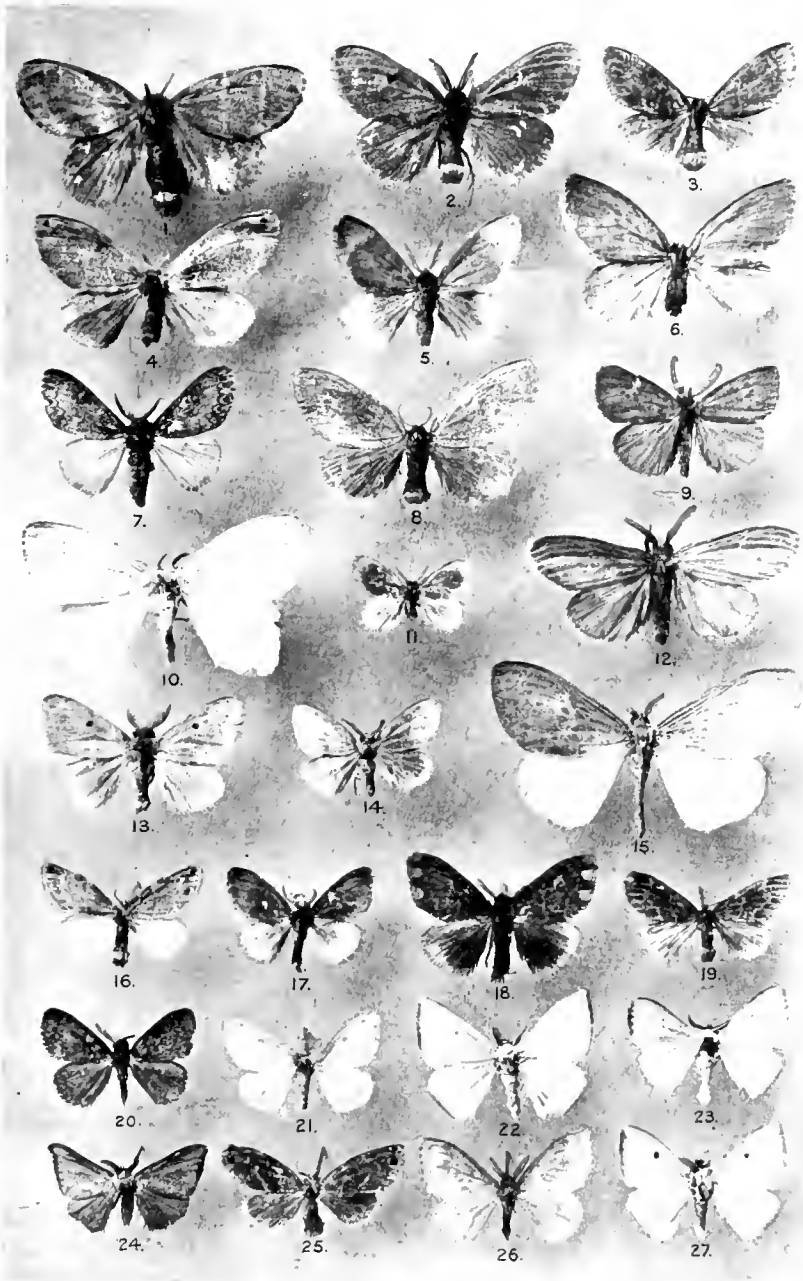
IN stating (on p. 1 of the preceding volume) that I had seen no previous records of Geometridae from the Mentawi Islands, I unfortunately forgot four names given on the authority of Hagen in *Maass*: "Bei Liebenswürdigen Wilden" (1902), p. 210, although I duly noted them about twenty years ago. The material was collected on Sipora, near the coast, in August and September 1897. The following are the names.

"*Euschema* (*Hazis*) *doubledayi* Gnell." (*recte* Snell.). This is already recorded for the island on p. 5 of my article, under its prior name of *transducta* Walk.

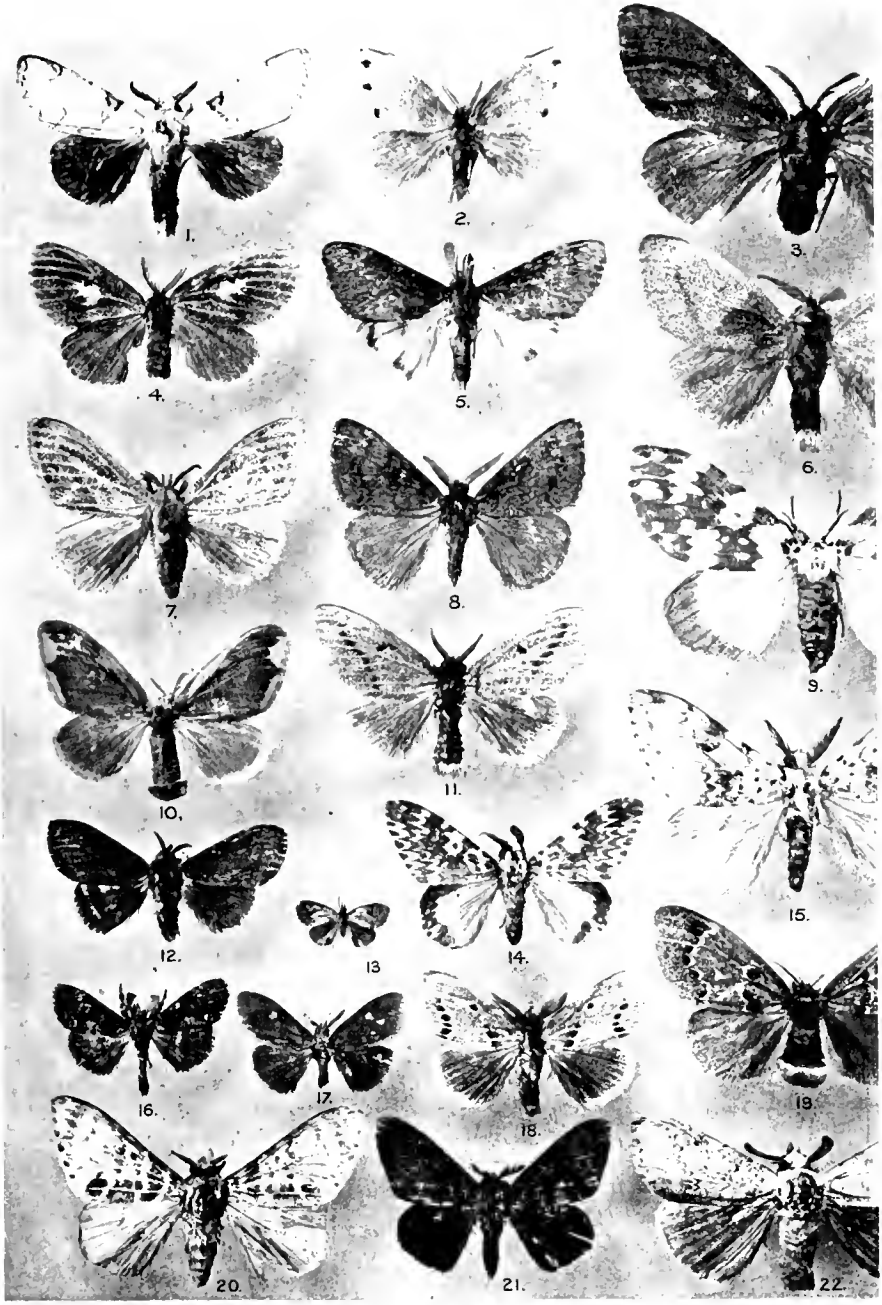
"*Euschema militaris* L." should, I suppose, be the form *selangora* Swinh. (1893), in which I have now merged *isolata* Warr. (1902). The Tring Museum has a (questionably authenticated) ♂ from Nias and the form is not rare in W. Sumatra.

"*Panaethia georgiata* Guen." I would suggest that this may be a misidentification of *subfumosa* Warr. (1897), which occurs, though not commonly, in W. Sumatra; or even of an aberrant *maculosa* Walk. By a curious coincidence, however, Tring has, as with *Dysphania militaris selangora*, a single ♂ of *georgiata* labelled "Nias."

"*Anisodes carnaria* Walk." Not identifiable. "*Anisodes* (?) *carnearia*" of Walker (1862) is—as Hagen could have learned from Hampson—an *Organopoda*, and it, or a close ally, is not unlikely to be found in the Mentawi Islands.



MALAYAN LYMANTRIIDAE.



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NOVITATES ZOOLOGICAE

Vol. XXXVIII. JUNE 1933. No. 2.

ON A COLLECTION OF LEPIDOPTERA FROM SPANISH MOROCCO.

By LORD ROTHSCHILD, Ph.D., F.R.S.

I HAVE lately received a small collection from Dr. E. Romei made during June and July 1932 in Spanish Morocco, and as no list of the Lepidoptera of this region appears to have been published, I think it will be of interest to give the list of the specimens received. By far the largest number were collected at Xauen, south-east of Tetuan, and Ketama, considerably farther south-east of Xauen. The other localities where a few of the specimens were captured are Tetuan, 200 m. = 656 ft.; Cuernos de Xauen, 1,300 m. = 4,264 ft.; Taghsut (south of Ketama), 1,800 m. = 5,904 ft.; Assila, 1,800 m. = 5,904 ft.; Tidiguin, 2,200 m. = 7,216 ft.; Hauta Kasdir, 1,750 m. = 5,740 ft. The altitude of Xauen is 600 m. = 1,968 ft., and of Ketama 1,500 m. = 4,920 ft.

1. **Papilio machaon maxima** Verity.

Papilio machaon maxima Verity, *Rhop. Palaearct.* p. 296, pl. lii, f. 2 (1911) (gen. vern.) (Tangier).
Papilio machaon maxima gen. aest. *angulata* Verity, *l.c.* p. 296, pl. lx, f. 14 (1911) (Tangier).

The specimen sent to Tring is slightly smaller than the ♂ taken by Hartert and Young near Azrou in the Middle Atlas, and the yellow is deeper and duller, but it appears certainly to be a typical example of *P. m. maxima* gen. aest. *angulata*.

1 ♂ Ketama, 27 July.

2. **Papilio podalirius lotteri** Aust.

Papilio podalirius ab. *lotteri* Austaut, *Petit. Nouv. Entom.* ii, p. 233 (1879) (Sidi-Bel-Abbès).
Papilio feisthameli forma *maura* Verity (gen. vern. ex Africa), *Rhop. Palaearct.* p. 293, pl. i, ff. 7, 8 (1911) (Lambessa).

1 ♂ and 2 ♀♀ came to Tring. One ♀ (No. 3) has a slight wash of yellow on the white portions of the wings, but very much less than in the gen. vern. *maura* ex Morocco in the Tring Museum; the ♂ and ♀ (No. 4) are typical *lotteri*, showing the narrow fulvous band above anal ocellus as opposed to the broader one in *feisthameli* and its spring brood *miegi* from north of the western Mediterranean, as does also the ♀ No. 3.

1 ♂, 2 ♀♀ Ketama, 14, 27, 31 July.

3. **Aporia crataegi mauritanica** Oberth.

Aporia crataegi mauritanica Oberthür, *Étud. Lépid. Comp.* iii, p. 120 (1909) (Algeria).

Dr. Romei sent me only 1 ♀, which agrees perfectly with the series at Tring from Algeria and the Middle Atlas of Morocco.

1 ♀ Ketama, 1 July.

4. **Ganoris rapae mauritanica** (Verity).

Pieris rapae mauritanica Verity, *Rhop. Palaearct.* p. 155, pl. xxxiii, ff. 43, 44; pl. xxxiv, ff. 15, 16 (1908) (Algeria text; Algeria, Morocco, Tunisia, figs.) (figs. 15, 16, pl. xxxiv as *leucotera* Stef.).

The specimens received are all very uniform and typical summer brood = *rapae mauritanica*, but 1 ♀ from Ketama (No. 11) has the dark apices of the forewing more strongly powdered with white.

3 ♂♂, 4 ♀♀ Ketama, 29 June; 1, 27 July.

1 ♂ Tetuan, 26 June.

5. **Leucochloe daplidice daplidice** (Linn.).

Papilio daplidice Linnaeus, *Syst. Nat.* ed. x, p. 468, no. 62 (1758) (Southern Europe and Africa).

Dr. Romei sent 4 ♂♂, 4 ♀♀ to Tring. If these had been spring brood examples, I should have considered them rather aberrant examples of *d. albidice* Oberth., but being summer examples I cannot separate them from typical *daplidice*, though one or two exhibit a slight yellowish tinge to the green markings below.

4 ♂♂, 4 ♀♀ Ketama, 29 June; 9, 12 July.

6. **Colias electo croceus** (Geoff.).

Papilio croceus Geoffroy, in Fourcroy, *Entom. Par.* ii, p. 250 (1785) (Paris).

The Tring Museum received 4 ♂♂, 8 ♀♀, 4 of which belong to the dimorphic white ♀ form *helice*. One *helice* (No. 30) is very small and has extra wide black outer margins with very small submarginal pale spots; 2 other *helice* (Nos. 31, 32) have the white tinged with cream buff; and also 1 orange ♀ (No. 29) has also very broad black outer margins and reduced pale submarginal spots.

4 ♂♂, 7 ♀♀ (3 ♀♀ *helice*) Ketama, 29 June; 4 July; 1 ♀ (*helice*) Tetuan, 26 June.

7. **Gonepteryx cleopatra** (Linn.).

Papilio cleopatra Linnaeus, *Syst. Nat.* ed. xii, p. 765, no. 105 (1767) (ex Barbaria).

One of the ♀♀ has so little orange flush on the hindwings that it might be mistaken for a ♀ *rhamni meridionalis*, if it were not for the checkered fringe of its forewing.

3 ♂♂, 3 ♀♀ Ketama, 4, 9, 12 July; 1 ♂ Taghsut, 3 August; 1 ♀ Cuernos de Xauen, 21 July.

8. **Gonepteryx rhamni meridionalis** Röber.

Gonepteryx rhamni meridionalis Röber, in Seitz, *Grossschmett. Erde*, i, p. 61 (1907) (Algeria and S. Asia Minor).

The Tring Museum has received 4 ♂♂, 4 ♀♀ of this southern race of *G. rhamni* from Dr. Romei. Röber has united the North African *rhamni* with those of South Asia Minor; unfortunately the Tring Museum only possesses 1 ♂, 1 ♀ from

Asia Minor, so I feel unable to give an opinion ; but this pair has larger orange stigmata on the forewings than either Algerian or Moroccan examples, so that I think it would be wise to restrict the name *meridionalis* to the N.W. African examples and await further material from Asia Minor. This insect is by no means common in Algeria, and in the Middle and Great Atlas of Morocco is excessively scarce, Dr. Hartert having only caught 2 ♂♂ on his four excursions.

4 ♂♂, 4 ♀♀ Ketama, 29 June ; 4, 6, 18, 29 July.

9. **Pyrameis cardui** (Linn.).

Papilio cardui Linnaeus, *Syst. Nat.* ed. x, p. 475, no. 107 (1758) (Europe and Africa).

One of the specimens received is normal in size and very bright coloured, the second a dwarf and paler in coloration.

1 ♂ Ketama, 18 July ; 1 ♂ Tetuan, 26 June.

10. **Vanessa polychloros erythromelas** Aust.

Vanessa polychloros var. *erythromelas* Austaut, *Le Naturaliste*, vii, p. 142 (1885) (Sebdou).

1 ♂, 1 ♀ of rather small size are in the collection. This pair are of an exceptionally bright reddish chestnut ground colour, but it requires a much larger series before it would be safe to separate the form from Spanish Morocco.

1 ♂, 1 ♀ Ketama, 4, 31 July.

11. **Argynnis maja seitzi** Fruhst.

Argynnis maja seitzi Fruhstorfer, *Intern. Entom. Zeitschr.* Guben, ii, p. 69 (1908) (Alger).

Although the carmine underside of forewings is extremely bright and the green wash above is very strong in the specimens received, I do not think the Spanish Moroccan examples can be separated from the Algerian typical *m. seitzi*.

2 ♂♂, 3 ♀♀ Ketama, 27 July ; 1 ♂, 1 ♀ Assila, 16 July ; 1 ♂, Tidiguin, 29 July.

12. **Argynnis elisa auresiana** Fruhst.

Argynnis adippe auresiana Fruhstorfer, *Intern. Entom. Zeitschr.* Guben, ii, p. 69 (1908) (Aurès Mts.).

In NOV. ZOOL. xxxvi (1931), p. 194, I treated this insect as a separate species, as I had already done in vol. xxiv of the same journal (1917). This arose from my having overlooked Herr Reuss's article in the *D. Entom. Zeitschr.* 1922. I now hasten to correct this error and place this insect under its correct name as the mainland form of *elisa* Godart. It is nearer to the Corsican *elisa stechei* Vogt, but differs from both island forms of *elisa* by its very large size and rich green underside of the underwing. Dr. Romei sent 5 ♂♂, 1 ♀ of this insect, which, though very red, agree very well with the deeper coloured Algerian examples. 1 ♂ (No. 185) is very large.

3 ♂♂ Ketama, 18, 27 July ; 1 ♂, 1 ♀ Taghsut, 3 July, 3 Aug. ; 1 ♂ Tidiguin, 29 July.

13. **Argynnis aglaia excelsior** subsp. nov.

Differs from *A. a. lyauteyi* Oberth. in its larger size (♂♂), and the intense fox-red of the upperside, NOT rufous cinnamon buff as in *lyauteyi*. Below the salmon rufous of the forewing is much more intense and the buffy yellow trans-

verse postmedian band on the hindwings is broader, and in ♂ ♀ the green is more washed with olive. In the ♀ the buffy yellow patch above vein 5 of hindwing below of *lyanteyi* is almost absent in *excelsior*. Tegulae brownish rose, NOT olive brown.

♂ (Type) forewing 37 mm., expanse 81 mm.

6 ♂♂ Ketama, 4, 18, 27, 31 July ; 1 ♀ Taghsut, 3 July.

14. **Argynnis lathonia lathonia** (Linn.).

Papilio lathonia Linnaeus, *Syst. Nat.* ed. x, p. 481, no. 141 (1758) (Europe).

All 8 examples are very large and highly coloured, but cannot be separated from the typical race.

4 ♂♂, 4 ♀♀ Ketama, 29 June ; 1, 4, 18, 27 July.

15. **Melitaea phoebe occitanica** Stdgr.

Melitaea phoebe v. *occitanica* Staudinger, *Cat. Lep.* ed. ii (1871) ("It." ex errore pro Ib.).

The four specimens are rather small and dusky, being evidently the summer brood. Dr. Hartert's series from the Middle Atlas of Morocco are of a slightly mixed character, some being more like *phoebe punica* Oberth., others more like *ph. occitanica*, evidently an intermediate race, though in my articles on Dr. Hartert's collection I treated his whole series as *ph. punica*.

1 ♂, 2 ♀♀ Ketama, 12, 18, 27 July ; 1 ♂ Assila, 16 July.

16. **Melitaea didyma mauretanica** Oberth.

Melitaea didyma forma *mauretanica* Oberthür, *Étud. Lépid. Comp.* iii, p. 243 (1909) (Algeria, Spain).

4 ♂♂, 1 ♀ are in the collection ; they are fine large examples of typical *mauretanica*, the ♀ being especially typical. Oberthür includes Spanish *didyma* under his name *mauretanica*, but they are not identical with North African examples. I have shown (NOV. ZOOL. xxiv, pp. 99, 100) that these Spanish examples must bear the name of *d. occidentalis* Stdgr. All 5 are very brilliant in colour.

2 ♂♂, 1 ♀ Ketama, 29 June, 1 July ; 2 ♂♂ Cuernos de Xauen, 21 July.

17. **Satyrus (Nytha) alcyone caroli** nom. nov.

Satyrus alcyone maroccana Oberthür, *Étud. Lépid. Comp.* xvii, Planches, Expl. des Pls. Pl. C, p. 48, Pl. C. Phot. (1920) (Forêt d'Azrou, Middle Atlas).

I have hitherto through error kept this race of *S. alcyone* under Mr. Charles Oberthür's name of *S. alcyone maroccana* (see NOV. ZOOL. xxxvi, p. 195, no. 14 (1931)) ; but it has to be given a new name, as that of *maroccana* was given to *S. atlantis* by Mr. Meade-Waldo in 1905.

The 3 ♂♂, 3 ♀♀ are very dark and dusky and agree with the description of Mr. Oberthür.

1 ♂, 1 ♀ Ketama, 29 June, 18 July ; 1 ♂, 1 ♀ Assila, 16 July ; 1 ♂, 1 ♀ Tidiguin, 29 July.

18. **Satyrus (Chazara) briseis major** Oberth.

Satyrus briseis var. *major* Oberthür, *Étud. Entom.* i, p. 27 (1876) (Boghari).

There are at Tring 3 ♂♂, 2 ♀♀ of this species; they are decidedly smaller than Dr. Hartert's Azrou examples, 1 ♀ (No. 79) being even small for typical *briseis*, but the other ♀ (No. 80) is as big as average *b. major* from Batna, so I think we can safely register these 5 examples under *b. major*.

1 ♂ Taghsut, 3 Aug.; 3 ♂♂, 1 ♀ Cuernos de Xauen, 21 July.

19. **Satyrus (Satyrus) sylvicola sylvicola** Aust.

Satyrus sylvicola Austaut, *Le Naturaliste*, ii, p. 284 (1880) (Sebdou).

1 ♂ Ketama, 3 July; 2 ♂♂ Taghsut, 3 Aug.

20. **Satyrus (Satyrus) fidia** subsp. ?

Until I treated of *fidia* Linn. in Nov. Zool. xxiv, p. 106 (1917), most authors had treated the *fidia* from S. Europe as being typical, whereas in *Syst. Nat.* ed. xii, p. 770, no. 138, Linnaeus gives Barbaria (= Algeria) as sole habitat.

There are 3 ♂♂ in the collection, of which 1 (No. 69) has the veins on the underside of hindwing white as in *fidia fidia* (= *f. albivenosa* Aust.), while the other two show no signs of these white veins. Until we can compare a large series from Spanish Morocco, it is impossible to separate these from typical *fidia*, but those found in the neighbourhood of Gibraltar show no signs of these white veins and otherwise agree with these 3 from Spanish Morocco.

3 ♂♂ Cuernos de Xauen, 21 July.

21. **Satyrus (Cercyonis) abdelkader romeii** subsp. nov.

♂. Differs from *a. abdelkader* in being larger and considerably darker. The ocelli on forewing larger and the white dots also larger, but not so dark as ♂ *a. lambessanus*.

Forewing 39 mm., expanse 83 mm.

Unfortunately only 1 ♂ was sent, but it is too distinct to be overlooked. *S. a. nelvai* occurs in the Middle Atlas, and *S. a. lambessanus* in the Great Atlas of Morocco, thus reversing the state of distribution as found in Algeria.

1 ♂ Cuernos de Xauen, 21 July.

22. **Satyrus (Minois) actaea simillima** Rothsch.

Satyrus actaea simillima Rothschild, *Nov. Zool.* xxxvi, p. 195, no. 16 (1931) (El Hajeb, Middle Atlas).

When I described this race from the specimens taken by Dr. Hartert and Mr. Meade-Waldo I overlooked Lucas's *actaea maroccana* (*Bull. Soc. Entom. France*, 1920), but the descriptions of both ♂ ♀ are so different that I have no hesitation in upholding my *simillima*. I cannot separate these Spanish Moroccan examples from those from other parts of the Atlas, though the ♀♀ on the hindwings below are a little greyer, less blackish. They show no signs of the white central band of *a. nevadensis*.

3 ♂♂, 2 ♀♀ Taghsut, 3 Aug.

23. **Melanargia galathea meade-waldoi** Rothsch.

Melanargia galathea meade-waldoi Rothschild, *Nov. Zool.* xxiv, p. 110, no. 54a (1917) (Tamarouth, Morocco).

Dr. Romei's specimens agree very well with Central Atlas examples collected by Dr. Hartert and Mr. Meade-Waldo; but the black areas, if anything, are more extensive, thus approaching Turkish *g. procida* as opposed to Hungarian *g. procida*.

5 ♂♂, 3 ♀♀ Ketama, 29 June; 1, 4 July.

24. **Pararge maera adrasta** (Hübn.).

Papilio maera adrasta Hübner, *Samml. Eur. Schmett.* i, ff. 836–839 (1805) (South Europe ?).

Three names have been applied to two of the Moroccan races of *maera*. In 1917 (Nov. Zool. xxiv, p. 112, no. 57) I described the race obtained by Mr. Meade-Waldo in the Great Atlas as *maera meade-waldoi*; this is a large race, as big as the usual *adrasta* from Europe; then in 1922 (*Etud. Lépid. Comp.* xix, p. 81) Charles Oberthür (ignoring my description, as there was no figure) renamed the Great Atlas form *maera alluaudi*; on p. 82 of the same work he applies the name of *Pararge maera* var. *nevadensis* Oberth. to the Middle Atlas race of *maera*.

The 2 ♂♂ sent by Dr. Romei do not agree with the ♂ from the Middle Atlas figured in the above work, pl. dxxxii, f. 4423, by Oberthür, but agree well with examples taken in Andalusia by Signor Zuerci which are the true *maera nevadensis* Oberth., but appear to me hardly if at all separable from *maera adrasta*.

The Middle Atlas race called *m. nevadensis* by Oberthür is distinguished from true *nevadensis* = *adrasta* by the ♂ being almost the same colour above as the ♀; but I refrain from naming it, as only 1 ♂ so far is known.

1 ♂ Ketama, 4 July; 1 ♂ Cuernos de Xauen, 21 July.

25. **Pararge megera megera** (Linn.).

Papilio megera Linnaeus, *Syst. Nat.* ed. xii, p. 771, no. 142 (1767) (Austria, Dania).

2 ♀♀ Ketama, 4, 27 July; 3 ♂♂ Cuernos de Xauen, 21 July.

26. **Pararge aegeria meone** (Stoll).

Papilio meone Stoll, in Cramer, *Pap. Exot.* iv, p. 51, t. cccxiv, ff. E. F. (1780) (Alger).

4 ♂♂, 3 ♀♀ were sent to Tring of this insect, and though some are less heavily marked than most Algerian examples, they are not *aegeria aegeria*.

4 ♂♂, 3 ♀♀ Ketama, 29 June; 12, 18, 27, 31 July.

27. **Epinephele lycaon mauretanica** (Oberth.).

Satyrus eudora var. *mauretanica* Oberthür, *Étud. Etom.* vi, p. 58 (1881) (Sebdou, Lambèze).

3 ♂♂, 5 ♀♀ Ketama, 29 June; 1, 4, 18, 31 July.

28. **Epinephele maroccana** Blach.

Epinephele lycaon var. *maroccana* Blachier, *Ann. Soc. Entom. France*, lxxvii, p. 216, pl. iv, f. 5 (1908) (Moroccan Atlas).

Because the late Monsieur Ch. Blachier described this species as a race of *lycaon* instead of as a distinct species Oberthür renamed it. This under the rules

is not admissible, and this insect must stand under the name *maroccana* as, Blachier's name has twelve years priority.

2 ♂♂ Cuernos de Xauen, 21 July.

29. **Epinephele jurtina hispulla** (Hübn.).

Papilio hispulla Hübner, *Samml. Eur. Schmett.* i, Taf. 116, ff. 593–596 (1805) (Portugal).

There are in this collection 4 ♂♂, 4 ♀♀; the ♂♂ appear quite typical, but ♀ No. 115 has the orange in cell and on disc reduced, ♀ No. 116 is a dwarf.

4 ♂♂, 4 ♀♀ Ketama, 29 June; 1, 18 July.

30. **Epinephele ida ida** (Esp.).

Papilio ida Esper, *Europ. Schmett.* i, pt. 2, p. 184, no. 176, pl. xcii, f. 2 (cont. xlii) (1777) (Pyrénées).

4 ♂♂, 4 ♀♀ Cuernos de Xauen, 21 July.

31. **Epinephele tithonus distincta** subsp. nov.

Differs from *tithonus decolorata* Fruhst. in the brighter deeper yellow on the underside of the hindwings, with the ocelli and other portions of the pattern picked out in deeper browns. Above the orange fulvous is deeper. Similar specimens collected by Signor Querci in Portugal are in the Tring Museum.

3 ♂♂, 3 ♀♀ Ketama, 9, 12, 27 July; 6 Aug.

32. **Coenonympha fettigi inframaculata** Oberth.

Coenonympha fettigi inframaculata Oberthür, *Étud. Lépid. Comp.* xix, p. 87 (1922) (Fort Toumliline, Morocco).

Dr. Romei sent a very fine series of this rare insect. They all show the large patch of white on the hindwing below, and most of them have the white line running from it along the transverse band much broader than in *fettigi* or *f. holli*. Above they vary much in the ♂♂, some having the forewing uniform fuscous, thence running through all stages to a broad rufous postmedian band.

12 ♂♂, 5 ♀♀ Ketama, 4, 9, 12, 14, 18, 21, 31 July; 6 Aug.

33. **Coenonympha pamphilus lyllus** (Esp.).

Papilio lyllus Esper, *Europ. Schmett.* i, pt. ii, Forts, pl. cxxii (cont. 77), ff. 1, 2 (1777) (?).

Three of the ♀♀ (Nos. 153, 154, 156) have very broad, almost black, borders to both pairs of wings, as also has 1 ♂ (No. 149); this is ab. *marginata* Stdgr.

3 ♂♂, 4 ♀♀ Ketama, 1, 4, 8, 9, 18 July, 6 Aug.; 1 ♂ Taghsut, 3 July.

34. **Thecla ilicis mauretanica** Stdgr.

Thecla ilicis var. *mauretanica* Staudinger, *Iris*, v, p. 279, no. 11 (1892) (Tunis).

There are in the collection 7 ♂♂, 4 ♀♀ of this butterfly. The 7 ♂♂ above are very dark, because they are very fresh; 3 ♀♀ show an approach to ab. *cerri* Hübn.; and 1 ♀ (No. 209) is ab. *auronitens* Seitz; this latter also is conspicuous by the absence of all markings on the underside of both fore- and hindwings, except a single red dot at tornus of hindwing and a shadowy indication of the white line on the hindwings. Some of both Algerian and Morocean examples show the traces of and even complete narrow white lines on forewings.

7 ♂♂, 4 ♀♀ Ketama, 26 June; 9, 12, 18, 27 July.

35. **Chrysophanus phloeas phloeas** (Linn.).

Papilio phlocas Linnaeus, *Faun. Suec.* ed. ii, p. 285 (1761) (Sweden).

Dr. Romei sent 6 ♂♂, 4 ♀♀. 1 ♂ (No. 215) and 1 ♀ (No. 218) show a few blue spots behind the submarginal fiery bands of the hindwings above.

4 ♂♂, 4 ♀♀ Ketama, 6 June, 1, 9, 27 July, 6 Aug.; 2 ♂♂ Tetuan, 26 June.

36. **Lampides boeticus** (Linn.).

Papilio boeticus Linnaeus, *Syst. Nat.* ed. xii, i, p. 789, no. 226 (1767) (Barbaria, = Algeria).

One of the ♀♀ is gigantic; the following are the measurements of the 4 examples:

♂ (No. 220)	Forewing	17 mm.,	expanse	38 mm.
♀ (No. 223)	,,	16 mm.,	,,	35 mm.
♀ (No. 222)	,,	17 mm.,	,,	38 mm.
♀ (No. 221)	,,	20 mm.,	,,	45 mm.

1 ♂, 3 ♀♀ Ketama, 1, 4, 9 July.

37. **Tarucus telecanus** (Lang).

Papilio telecanus Lang, *Verz. Schmett.* ed. ii, p. 47 (1789) (Augsburg).

One of the specimens (No. 227) is very large.

4 ♂♂, 4 ♀♀ Ketama, 1, 4, 9, 18, 31 July.

38. **Lycaena astrarche calida** Bell.

Lycaena agestis var. *calida* Bellier de la Chavignerie, *Ann. Soc. Ent. France* (ser. iv), ii, p. 615, no. 2 (1862) (Corsica).

The name *calida* applies to the Mediterranean race as a whole and *ornata* Stdgr. is to be used only for the spring brood. One of Dr. Romei's ♀♀ (No. 235) is similar to the ♂♂.

3 ♂♂, 9 ♀♀ Ketama, 1, 3, 12, 18, 27 July; 6 Aug.

39. **Lycaena icarus celina** Aust.

Lycaena celina Austaut, *Pet. Nouv. Entom.* ii, p. 293, no. 212 (1879) (Sidi-Bel-Abbés).

The chief difference between *icarus celina* and *icarus icarus* is the marginal row of black dots on the hindwings. In Morocean examples both from the Middle and Northern Atlas these dots are smaller and less strongly marked than in Algerian specimens, but they must be treated as *celina* all the same, as the spots are certainly quite apparent. The 3 ♀♀ sent are decidedly small, but 2 ♂♂ (Nos. 246 and 251) are veritable dwarfs; the ♂ (No. 241) measures forewing 12 mm., expanse 27 mm.

5 ♂♂, 2 ♀♀ Ketama, 9, 18, 27 July; 1 ♂, 1 ♀ Cuernos de Xauen, 21 July.

40. **Lycaena amanda abdelazis** Oberth.

Lycaena amanda abdelazis Oberthür, *Étud. Lépid. Comp.* xix, pt. 1, p. 108 (1922) (Sebbab Valley, Middle Atlas).

I cannot find any trace of a description by Blachier, so I enter this subspecies under Oberthür's reference, as Mr. Meade-Waldo only quotes it under *amanda*.

2 ♂♂, 1 ♀ Ketama, 1, 4, 9 July.

41. **Lycaena argiolus algirica** Oberth.

Lycaena argiolus var. *algirica* Oberthür, *Étud. Lépid. Comp.* x, p. 401 (1915) (Algeria).

The greater extent of black in the outer half of the wings on the upperside of the ♀ distinguishes this race.

4 ♂♂, 4 ♀♀ Ketama, 9, 12, 18 July.

42. **Adopaea thaumas thaumas** (Hufn.).

Papilio thaumas Hufnagel, *Berl. Mag.* ii, p. 62 (1766) (Berlin).

One of the ♀♀ (No. 271) is very large (forewing 17 mm., expanse 39 mm.).

4 ♂♂, 4 ♀♀ Ketama, 29 June; 4, 6, 9 July.

43. **Adopaea acteon acteon** (Rott.).

Papilio acteon Rottemburg, *Naturf.* vi, p. 39, no. 18 (1775) (Landsberg a.d. Warthe)

1 ♂, 2 ♀♀ Ketama, 29 June; 12, 18 July.

44. **Adopaea hamza** (Oberth.).

Hesperia hamza Oberthür, *Étud. Entom.* i, p. 28, pl. iii, ff. 2A, B (1876) (Oran).

1 ♀ Ketama, 29 June.

45. **Carcharodus marrubii marrubii** (Ramb.).

Pamphila marrubii Rambur, *Faune Entom. Andal.* ii, p. 323, no. 3 (on pl. 12, ff. 3, 4, as *Syrichtus baeticus*).

Only 3 specimens were sent.

2 ♂♂, 1 ♀ Ketama, 29 June, 18 July.

46. **Carcharodus lavatherae lavatherae** (Esp.).

Papilio lavatherae Esper, *Europ. Schmett.* i, pt. 2, p. 148, no. 149, pl. lxxxii (cont. xxxii), f. 4 (1777–1780) (France and Switzerland).

Dr. Romei sent only 2 examples, so he found it apparently rare. This is, I consider, typical *lavatherae*, as neither specimen shows any sign of the red found in *l. internirufus* Rothsch. from West Algeria.

2 ♂♂ Cuernos de Xauen, 21 July.

47. **Carcharodus stauderi romeii** subsp. nov.

Differs from *stauderi stauderi* gen. aest. *fulvissima* Verity by the blackish, not rich brown, ground colour, the greyish markings similar to gen. aest. *stauderi*, and the deep red smear above vein 1 of forewing.

3 ♂♂ Ketama, 29 June, 9 July.

48. **Hesperia numida** (Oberth.).

Syrichthus alveus-numida Oberthür, *Étud. Lépid. Comp.* 4, p. 404, pl. lv, ff. 484–486 (1910) (Lambèze).

1 ♂ Assila, 16 July.

49. **Hesperia onopordi** Ramb.

Hesperia onopordi Rambur, *Faune Andal.* p. 319, no. 4, pl. viii, f. 13 (1842) (Granada).

6 ♂♂, 3 ♀♀ Ketama, 9, 12, 31 July, 6 Aug.; 1 ♂ Assila, 16 July.

50. **Hesperia ali** (Oberth.).

Syrichthus ali Oberthür, *Étud. Entom.* vi. pt. iii. p. 61. pl. ii. f. 3 (1881) (Provinces Oran and Constantine).

The 5 specimens in the collection show slight variation towards Spanish examples of *sao* (*guadarramensis* Warr.) below, but are certainly true *ali* ; all 5 are typical *ali* gen. aest. *therapnoides* Oberthr. The only difference from Algerian *ali* is that the spots on the upperside are more whitish, less yellow.

2 ♂♂, 2 ♀♀ Ketama, 29 June, 12 July ; 1 ♂ Tetuan, 26 June.

51. **Zygaena trifolii seriziati** Oberth.

Zygaena seriziati Oberthür. *Étud. Entom.* i, p. 33 (1876) (Collo).

Dr. Romei sent 8 examples ; they are not quite typical in so far that some of the five ♂♂ have the red of the hindwings reduced almost as much as in *trifolii nigra* Dz. (I have found that all *seriziati* from the higher " Kabylie " are *nigra*, therefore *nigra* is not a simple aberration, but what Staudinger calls " var. et ab.," and therefore it must stand as a subspecies), and one ♀ has the red on hindwings reduced to as little as in normal ♂ *seriziati*.

5 ♂♂, 3 ♀♀ Ketama, 29 June ; 6, 9, 12, 18 July.

52. **Zygaena trifolii diffusemarginata** subsp. nov.

♂♀. Differs from *t. syracusiae* in the dark border of the hindwings being very much wider.

3 ♂♂, 3 ♀♀ Hauta Kasdir, 15, 19 July (ex coll. Ferrer).

53. **Thaumatopoea pityocampa pityocampa** (Schiff. & Den.).

Phalaena pityocampa Schiffermüller & Denis, *Ankünd. Syst. Verz. Schmett. Wien*, p. 58 (1775) (Vienna).

In Nov. Zool. xxiv, p. 349, no. 54, I unfortunately referred the Algerian specimens of this species to typical *pityocampa*, whereas they should have been referred to the subspecies *pityocampa orana* Stdgr. & Rbl. (*Cat. Lep.* p. 113, no. 875a).

The 2 specimens from Ketama are not *orana* and agree perfectly with examples from Spain and Portugal.

2 ♂♂ Ketama, 1 July.

54. **Notolophus splendida** (Ramb.).

Orgya splendida Rambur, *Faune Entom. And.* ii, pl. 15, ff. 3, 4, 5, 6, and d. (1842) (Andalusia).

In Nov. Zool. xxiv, pp. 350, 351, I discussed *Notolophus dubia* Tausch, *N. splendida* (Ramb.), and *N. algirica* (Luc.) (= *josephina* Aust.) very carefully, and I then came to the conclusion that Dr. Strand (in Seitz) was wrong in placing all the forms of this group as subspecies of *dubia* Tausch, and I treated them as 3 species with a number of subspecies of *dubia* and *splendida*.

Since then Mr. Collenette has been revising the *Liparidae* and has come to the conclusion that I was wrong and Dr. Strand right, and that all the forms of this group of *Notolophus* are forms of one species *dubia* Tausch. I have been considering this question again in connection with the 7 ♂♂ of the present collection and I cannot but think that the matter is not yet settled. I therefore

quote these 7 examples, which are, undoubtedly, typical *splendida* Ramb., under the binominal appellation of *Notolophus splendida* until I have satisfied myself as to whether all the *dubia-splendida* group are one single very variable species or else 3 less variable species.[1]

Some of the 7 examples are less bright yellow than the rest, as they exhibit a wash of olive over the yellow.

7 ♂♂ Ketama, 29 June, 4 July.

55. **Notolophus trigotephras transiens** (Stdgr.).

Orgyia trigotephras var. *transiens* Staudinger, *Cat. Lépid. Pal.* ed. iii, p. 114, no. 888b (1901) (Mauretania).

The single specimen is very large (forewing 15 mm., expanse 33 mm.) and the blue-grey patches and dark lines are very faint, while the general coloration is very dark chocolate ; however, it would be very unwise to base a new subspecies on this single example.

1 ♂ Ketama, 29 June.

56. **Euproctis phaeorrhoea xanthorroea** Oberth.

Euproctis chrysorrhoea var. *xanthorroea* Oberthür, *Étud. Lépid. Comp.* xii, p. 282 (1916) (Algeria, Tunisia).

The 2 ♂♂ in the collection differ slightly from Algerian examples in having all the abdomen, with the exception of the last segment and the anal tuft, washed with brown ; thus tending towards European *phaeorrhoea*.

2 ♂♂ Xauen, 22 July.

57. **Paida murina griseola** subsp. nov.

Differs from *murina murina* and *m. conjuncta* in the ground colour being much more mouse grey, NOT yellowish wood grey.

2 ♂♂, 1 ♀ Xauen, 22 July (Type ♀).

58. **Roeselia togatulalis** (Hübn.).

Pyralis togatulalis Hübner, *Europ. Schmett., Pyr.* p. 20, f. 130 (1837) (Europe).

The specimen is very boldly and distinctly marked.

1 ♂ Ketama, 9 July.

59. **Cirphis loreyi** (Dup.).

Noctua loreyi Dupouchel, in Godart, *Lépid. France*, vii, p. 81, pl. 105, f. 7 (1827) (Provence, France).

5 ♂♂, 4 ♀♀ Xauen, 22 July.

60. **Laphygma exigua** (Hübn.).

Noctua exigua Hübner, *Europ. Schmett., Noct.* f. 362 (1808) (Europe).

The single example is decidedly small.

1 ♂ Xauen, 22 July.

[1] The similarity of the genitalia of the various forms supports Prof. Strand's opinion.—K. J.

61. **Euxoa segetum** (Schiff. & Den.).

Phalaena segetum Schiffermüller & Denis, *Ankünd. Syst. Verz. Schmett. Wien*, pp. 81, 252, ff. 3 a, b (1775) (Vienna).

The single ♀ with almost totally black forewings belongs to the ab. *corticeus* Haw.

1 ♀ Xauen, 22 July.

62. **Exoa margaritosa** (Haw.).

Noctua margaritosa Haworth, *Lepid. Brit.* p. 218 (1809).

The 4 ♂♂ vary from deep maroon brown to sooty brown varied on forewing and thorax with yellowish olive.

4 ♂♂ Xauen, 22 July.

63. **Agrotis c-nigrum** (Linn.).

Phalaena c-nigrum Linnaeus, *Syst. Nat.* ed. x, p. 516, no. 110 (1758) (Sweden).

1 ♂ Xauen, 22 July.

64. **Miselia dysodea dysodea** (Schiff. & Den.).

Noctua dysodea Schiffermüller & Denis, *Ankünd. Syst. Verz. Schmett. Wien*, p. 72 (1775) (Vienna).

I cannot understand why the late William Warren in Seitz uses Vieweg's name which was published thirteen years later than Schiffermüller's.

1 ♂ Xauen, 22 July.

65. **Chloridea peltigera** (Schiff. & Den.).

Phalaena peltigera Schiffermüller & Denis, *l.c.* p. 89 (1775) (Vienna).

The two examples are very sharply marked.

1 ♂, 1 ♀ Xauen, 22 July.

66. **Acoutia luctuosa** (Schiff. & Den.).

Phalaena luctuosa Schiffermüller & Denis, *l.c.* p. 90 (1775) (Vienna).

1 ♂ Xauen, 22 July.

67. **Eublemma parva** (Hübn.).

Noctua parva Hübner, *Samml. Europ. Schmett. Noct.* f. 356 (1808) (Europe).

The 5 examples show unusually little individual differences.

1 ♂, 3 ♀♀ Xauen, 22 July ; 1 ♂ Ketama, 6 Aug.

68. **Eublemma ostrina** (Hübn.).

Noctua ostrina Hübner, *Samml. Europ. Schmett. Noct.* ff. 309, 648 (1808) (Europe).

All 3 examples are typical gen. aest. *aestivalis*.

1 ♂, 2 ♀♀ Xauen, 22 July.

69. **Eublemma suava blandula** (Ramb.).

Noctua blandula Rambur, *Cat. Lépid. And.* pl. x, f. 2 (1858) (Andalusia).

I have only very few typical *blandula* for comparison, so although the 4 examples differ strongly in colour from Rambur's figure, I do not yet venture to separate the Moroccan examples from the Spanish ones. These 4 specimens are very strongly suffused with purple (for further notes see Nov. Zool. xxvii, p. 85, 1920).

2 ♂♂, 2 ♀♀ Ketama, 4, 6 July.

70. **Synthymia fixa australis** (Oberth.).

Metoptnia monogramma australis Oberthür, *Étud. Lépid. Comp.* xvi, p. 199, pl. xdvii, f. 4137 (1919) (Géryville).

The single example agrees well with Oberthür's figure.

1 ♀ Xauen, 22 July.

71. **Phytometra gamma** (Linn.).

Phalaena gamma Linnaeus, *Syst. Nat.* ed. x, p. 513, no. 91 (1758) (Sweden).

The 2 examples are quite typical.

2 ♂♂ Xauen, 22 July.

72. **Autophila ligaminosa** (Eversm.).

Spintherops ligaminosa Eversmann, *Bull. Soc. Imp. Nat. Mosc.* 1851, p. 630 (Georgia and Armenia).

1 ♂, 2 ♀♀ Ketama, 4, 14, 27 July.

73. **Catocala (Ephesia) nymphaea** (Esp.).

Noctua nymphaea Esper, *Schmett.* iv, pt. 1, p. 158, no. 52, pl. cv, f. 4 (1787) (Lyons).

1 ♀ Ketama, 29 June.

74. **Catocala (Ephesia) conversa** (Esp.).

Noctua conversa Esper, *Schmett.* iv, pt. 1, pl. cvB, ff. 1, 2, 3 (1787) (Europe).

Three specimens, two of which have a slight olive tint to the yellow on the hindwings.

1 ♀ Xauen, 22 July ; 1 ♂ Cuernos de Xauen, 21 July ; 1 ♂ Taghsut, 3 Aug.

75. **Parallelia algira** (Linn.).

Phalaena algira Linnaeus, *Syst. Nat.* ed. xii, p. 836, no. 98 (1767) (Algeria).

1 ♀ Ketama, 14 July ; 3 ♂♂ Xauen, 22 July.

76. **Chlorissa pulmentaria** (Guen.).

Nemoria pulmentaria Guenée, in Boisduval & Guenée, *Hist. Nat. Ins. Spec. Gén. Lépid. Uran. et Phal.* ix (vol. i), p. 349, no. 541 (1857) (S. France, Dalmatia, Italy).

1 ♀ Xauen, 22 July.

77. **Rhodostrophia vibicaria strigata** Stdgr.

Rhodostrophia vibicaria var. (et ab.?) *strigata* Staudinger, *Cat. Lep.* ed. ii, p. 154, no. 2227a (1871) (Andalusia, N. Persia).

The single example is large and agrees with Sicilian specimens. The figure in Seitz is too small.

1 ♂ Ketama, 1 July.

78. **Scopula marginipunctata** (Goeze).

Phalaena Geometra marginipunctata Goeze, *Entom. Beytr.* iii, pt. iii, no. 85 (1781) (Europe).

Of the 3 examples Mr. Prout considers the 2 Xauen specimens are his form *argillacea* (the Mauretanian race) and the Ketama ♀ somewhat intermediate; but I think *argillacea* can hardly be treated as more than an ab. loc.

1 ♂, 1 ♀ Xauen, 22 July; 1 ♀ Ketama, 9 July.

79. **Sterrha lambessata** (Oberth.).

Acidalia lambessata Oberthür, *Bull. Soc. Ent. France*, 1887, p. lxvii, no. 8 (Lambessa, Algeria).

One example, quite typical.

1 ♀ Ketama, 1 July.

80. **Sterrha allardiata** (Mab.).

Acidalia allardiata Mabille, *Ann. Soc. Ent. France* (4), ix, p. 59, pl. 2, f. 7 (1869) (Lambessa, Biskra)

Differs from Mabille's figure in the base of forewings not being white and in the ante- and postmedian bands being more widely separated, as in *sericeata* Hübn.; but more Moroccan material is required before we can separate the Moroccan and Algerian forms.

1 ♀ Ketama, 1 July.

81. **Sterrha lutulentaria terminolineata** subsp. nov.

Differs from *lutulentaria lutulentaria* above in being paler yellow, with greyish, less yellowish, markings and with terminal dashes between the nervures, thus approaching *fuscovenosa* Goeze.

1 ♀ Ketama, 9 July.

82. **Sterrha ostrinaria** (Hübn.).

Phalaena ostrinaria Hübner, *Samml. Europ. Schmett. Geomet.* f. 430 (1805) (Europe).

1 ♀ Ketama, 9 July.

83. **Sterrha fathmaria** (Oberth.).

Eupithecia fathmaria Oberthür, *Étud. Entom.* i, p. 63 (1876) (Oued-Hounet, Prov. Oran).

This is the first record of this very distinct species from Morocco, though it is well known from all over Western Algeria.

1 ♂, 8 ♀♀ Ketama, 29 June; 1, 4 July.

84. **Rhodometra sacraria** (Linn.).

Phalaena (*Geometra*) *sacraria* Linnaeus, *Syst. Nat.* ed. xii, p. 863, no. 220 (1766) ("Habitat in Barbaria").

All 3 belong to ab. *labda* Cram. One ♀ is strongly marked, the oblique dark line reaching the hindmargin as in the ♂. A small well-defined cell spot is also developed in this ♀.

1 ♂, 2 ♀♀ Xauen, 22 July.

85. **Coenotephria kalischata** (Stdgr.).

Cidaria kalischata Staudinger, *Berl. Entom. Zeitschr.* xiv, p. 127, no. 25 (1870) (Malaga, Oran).

The single specimen, though a ♀, shows no sign of the rosy suffusion given by the author for that sex, but has the ground more olivaceous grey. This is new for Morocco.

1 ♀ Ketama, 1 July.

86. **Euphyia bilineata numidica** Rothsch.

Euphyia bilineata numidica Rothschild, *Ann. Mag. Nat. Hist.* (9), xvi, p. 206, no. 37 (1925) (Algeria, Cyrenaica).

The ♂♂ show the usual wide range of variation; 1 ♂ has the median area distally very dark, this is from Taghsut; while one from Ketama is extremely vivid yellow with all transverse markings very yellow.

3 ♂♂ Taghsut, 3 July; 2 ♂♂, 5 ♀♀ Ketama, 1, 9, 12 July.

87. **Anaitis efformata** Guen.

Anaitis efformata Guenée, *Hist. Nat. Ins. Spec. Gén. Lépid. Phalèn.* ii, p. 500, no. 1730 (1858) (Syria).

This species up to the year 1923 had been treated by almost every lepidopterist as a synonym of *A. plagiata* (Linn.), and it was Dr. Jordan who first drew attention to the SPECIFIC differences. *A. efformata* had, in the third edition of Staudinger and Rebel's *Catalogue*, been placed with a doubt mark (?) under his var. et ab. *pallidata* described in the *Horae*, vii, p. 171 (1870). As there is no CERTAIN difference in colour, pattern, and size between *plagiata* and *efformata*, and the striking differences are confined to the secondary sexual organs of both ♂ and ♀, it is hardly surprising that the two species were considered as one for so long. For further particulars see Jordan, NOV. ZOOL. xxx, pp. 243–246 (1923).

1 ♀ Xauen, 22 July; 1 ♂, 1 ♀ Ketama, 29 June, 9 July.

88. **Gymnoscelis pumilata** (Hübn.).

Phalaena (*Geometra*) *pumilata* Hübner, *Samml. Europ. Schmett., Geom.* fig. 388 (1805) (Europe).

A curious error has apparently crept into the plate (No. 75) of Hübner's Sammlung, displaying the insects numbered 386 to 390 of the *Geometrae*. The species of "Pugmoth" dealt with here is depicted by fig. 388 and *aversaria* Hübn. = *aversata* Linn. by fig. 389; and these figures have been quoted as applying to those species without comment. But on the same plate (75) in the explanation at the foot of the plate the numbers are reversed, *aversaria* being numbered 388 and *pumilata* 389.

Jacob Hübner, in his *Systematisch-alphabetisches Verzeichniss zur Sammlung europäischer Schmetterlinge*, p. 48, 1892, quotes *pumilata* under 389, as does also Herrich Schäffer in his *Syst. Bearb. Schmett. Europ.* 3, 141, under No. 72 (1847), and Dupouchel, in Godart, *Hist. Nat. Lépid. France, Suppl.* iv, p. 105, no. ccciii, pl. 59, f. 3 (1842). None of these three authors explain why they have quoted 389 instead of 388, and most other authors have used No. 388 without scruple.

The only reason I can imagine for so many authors (including Staudinger) quoting 388 without any comment is that 388 of the explanation = 389 figure on plate called in explanation *averseria* is the so well-known *aversata* Linn. that every author thought his readers would see that the explanation was the erroneous factor and the figure with the number 388 could be the only possible *pumilata*.

2 ♂♂, 4 ♀♀ Xauen, 22 July ; 2 ♀♀ Ketama, 1, 4 July.

89. **Rhoptria asperaria** (Hübn.).

Phalaena (*Geometra*) *asperaria* Hübner, *Samml. Europ. Schmett.* fig. 484 (1805) (Europe).

Both examples belong to the typical banded form hardly known from N.W. Africa, where it is almost entirely replaced by the faintly marked, nearly unicolorous form *pityata* Ramb.

1 ♂ Ketama, 4 July ; 1 ♀ Xauen, 22 July.

90. **Mannia oranaria** (Stdgr.).

Tephronia oranaria Staudinger, *Iris*, 5, p. 179 (1892) (Sebdou, Oranais).

This species is new for Morocco.

1 ♂ Ketama, 9 July ; 1 ♀ Xauen, 22 July.

JOURNEY TO ALGERIA AND MAROCCO IN 1929.

By ERNST HARTERT.

On February 16th, 1929, I left England with Mrs. Hartert for Algeria to collect bird skins for our friend Dr. L. C. Sanford of Connecticut, U.S.A., as well as to fill certain gaps in Lord Rothschild's collection if opportunity offered itself, and to collect lepidoptera for the Tring Museum. We were looking forward to the sun and warmth of N. Africa and rejoiced to escape the cold European winter. France looked very different from what we knew of it, though we often had traversed it about this same time of the year. Some snow was on the ground—all the rivers and water supplies were frozen along the route from Calais to Marseilles. The train arrived at Marseilles over six hours late on account of the difficulty in obtaining water for the engine. The next day we crossed over to Algiers, and after spending a week there, took train for Biskra, where we arrived on February 27th. I had arranged with the Swiss taxidermist, Ernst Flükiger, of Interlaken, to assist me on this trip in collecting bird skins. Biskra was somewhat changed—instead of the former small garrison of French soldiers and Spahis in their picturesque uniforms, before the war, it swarmed now with Senegalese negro soldiers which make up the after-war garrison ; also the number of automobiles had greatly increased and cars of all descriptions went over the roads in the desert in various directions. Bird life was more or less about the same as before, but already on our first outing I made a surprising discovery. On March the 1st a cold strong wind was blowing and light was bad, the air being full of sand and dust. Nevertheless, we went on, just to the little range of rocks extending from near the gardens of Beni Mora to the neighbourhood of the hot wells. There we found the usual poor bird population, but there were also flying some Rock-Martins, *Riparia rupestris*, and as I had only my walking-stick gun with me, with which shooting in strong wind and thick air is rather difficult, I asked Flükiger to do the shooting. When we returned to the Hotel du Sahara to unpack the birds he had shot I was surprised to see that one of the Martins was much smaller and paler than the others. Flükiger assured me he had noticed that already when he shot it. I was quite excited, and it struck me at once that it looked somewhat like the form discovered by Dr. Geyr von Schweppenburg in the Hoggar Mountains. Next day we were both again in the same place, but no Rock-Martins were to be seen. Several days afterwards we came across them in the river bed of the Oued Biskra, south of Biskra. Here again they were flying together with *Riparia rupestris rupestris*, and, of course, we got several specimens, however not many of them. That was all we saw of them in that neighbourhood.

We saw the little pale Rock-Martin at the end of March near Beni-Ounif de Figuig, in westernmost Algeria, close to the Marocean boundary. Some were flying on the eastern slope of the Djebel Grouz, in a place where there was a steep cliff, on which they probably nested, though it was too early for eggs. Here, too, we got some specimens, and the next day I saw one flying in the street of Beni-Ounif during a gale. They were alone, not in company with the other species,

which is a winter bird in South Algeria. I certainly imagined I had discovered a new *Riparia*, but when back at Tring I compared them with our *Riparia obsoleta spatzi* Geyr, and others lent (among them the type) from the Museum Koenig in Bonn, as well as with five skins collected by Buchanan in the Hoggar Mountains, during his crossing of the Sahara—I found them indistinguishable! The coloration is the same and the measurements agree. The wings are as follows:

♂ ad. Geyr coll. Hoggar Mountains: 118, 119, 123 (type), 123·5 mm. ♀ 121·5 mm.

♂ ad. Buchanan coll. Hoggar Mountains: 118, 119 mm. ♀ 118, 119, 120 mm.

♂ ad. near Biskra and Djebel-Grouz near Beni-Ounif: 118, 118·5, 122, 122·5, 123 mm. ♀ 117, 122 mm.

This bird occurs also in Marocco, near the eastern border of that land, for Monsieur Heim de Balsac observed it west of Figuig, and noticed the pale coloration as compared with *Riparia rupestris rupestris*, but was unable to get a specimen. Also when travelling throughout a long day, over sixteen hours in an automobile omnibus, from Figuig to Oujda, we clearly saw a few of these birds at the rocks near Berguent, but there was no time to unpack the guns to get them.

It is strange that this bird, the same as the one which is common in the Hoggar Mountains, was never observed by anyone before Heim de Balsac and myself came across it in Algeria and Marocco. I believe it must occur in other places, sterile rocky ranges in the Sahara, but so far there is nothing known about it.

Near Biskra *Galerida cristata arenicola* was common in the plains, but on all rocky hill ground *Galerida theklae hilgerti* took its place. *Oenanthe lugens* was very common. *Anthus campestris* was common near Biskra, but still on migration. A specimen of *Oenanthe oenanthe oenanthe* was shot at Biskra on March 17th, but the migration of it was only just beginning.

Lanius excubitor elegans was much rarer than formerly. I only saw one specimen near Biskra, and that was so shy that I could not shoot it. Also *Oenanthe moesta* was much rarer than formerly, but it occurred farther away than we went, as we made most of our trips on foot.

After three weeks we left Biskra and went by train to Algeria, and from there to Beni-Ounif near Figuig, in westernmost Algeria, near the Maroccan boundary.

The surroundings of Beni-Ounif were very dry, the river had no water, the vegetation in the desert was poor, but along old dry water-courses were small *Zizyphus* bushes, and in the open desert numerous specimens of the peculiar plant *Anabasis aretioides* in all sizes.

The rocky range of the Djebel-Grouz was almost bare of vegetation. Only in one place, at a steep bare cliff, we came across the *Riparia obsoleta spatzi*. The Grey Shrike here is *Lanius excubitor elegans*, but I only observed a single specimen on a date palm in the forsaken, dying portion of the oasis, which I was able to procure.

An *Anthus trivialis* was met on migration close to Beni-Ounif, March 28th.

Oenanthe leucopyga aegra was surprisingly common. It was evidently breeding on the Djebel-Grouz, and descended to the plain to feed in the morning. We collected a series of this lovely bird. All white-headed specimens had the wings black, all black-headed ones had dark-brown quills, only one

female, shot on Djebel-Grouz 26.iii.1929 had brown quills, but they were fresh, not worn. Adult females had also white heads!

For eggs it was evidently too early, as could easily be seen by the condition of the sexual organs. The measurements of the wings were as follows:

♂ ad., all black quills and white heads: Wing 102, 102, 104, 104, 105·5, and 108 mm.

♀ ad., black quills, white heads: Wing 97, 97·5, 99, 99, 100 mm.

♂ of last year, brown quills, black heads: Wing 101, 102, 102, 103, 103 mm.

♀ of last year, brown quills, black heads: Wing 95 (with one white feather on crown), 96·5, 97 mm.

From Beni-Ounif we went by automobile omnibus to Oujda. The bus left Figuig at half-past two in the morning, and arrived at Oujda about six o'clock at night. The journey across the open desert was very beautiful, the moon shining, and the air being quiet. We saw Gazelles and Bustards (*Chlamydotis undulata undulata*), and a number of *Burhinus oedicnemus*, in the morning, at sunrise. We drove through the interesting desert triangle, an absolute piece of Sahara, with desert vegetation and desert fauna, which I have described before (NOV. ZOOL., xxxiv, p. 46, 1927).

The road was often rather rough, but the chauffeur was an expert driver. We went on without stopping to Tendrara, on the plateau, where it was bleak and very cold. Later on we arrived at Berguent, 918 m. high, where we got some hot coffee and ate what remained of our provisions.

There we clearly observed once more the interesting Martin, *Clivicola obsoleta spatzi*. Going farther north towards Oujda, we saw to our surprise that a heavy thunderstorm had gone down there in the morning and had torn away great pieces of the high road. We were therefore obliged to take a roundabout way over the fields, without any roads at all. The omnibus rocked terribly, but here again the driver was perfectly able to overcome the difficulties, only we arrived rather late at Oujda.

From Oujda we went by autobus over good roads to the picturesque town of Fez, and from there via Meknès to Rabat.

At Rabat I noticed no great change in bird life; the fascinating Lesser Kestrel (*Falco naumanni*) seemed as common as before, and the white-rumped Swiftlet (*Apus affinis galilejensis*) nested on the one great building, where it nested before, and two nests of Martins in another street were taken by force by some of them, but were later disturbed and partially destroyed, apparently by the inhabitants of the house.

On the last day at Rabat we made a long walk in the direction of Meknès. There were still large ponds on the plain, and on one of them a flock of over twenty *Larus melanocephalus*, a species never before noticed in Marocco, was closely observed; but as I had only a walking-stick gun, it was quite impossible to obtain a specimen.

From Rabat we proceeded to El-Hajeb, where we got comfortable rooms in the newly built hotel. *Oenanthe hispanica hispanica* was nesting commonly above El-Hajeb, on April 23rd eggs in a female were already half size.

We of course paid attention to the rocks where the Bald-headed Ibis, *Comatibis eremita*, was breeding. In the stomachs of some specimens we found:

1. Masses of beetles, caterpillars, and beetle-larvae.
2. Beetles, larvae of coleoptera and lepidoptera, 1 *Helix*, 1 scolopender.

3. Beetles, larvae, caterpillars.

4. Masses of beetles, the stomach almost full of them.

We never heard any call, but that these birds have some notes, very seldom heard and not loud, I have observed in the Berlin Zoological Gardens, last spring.

From El-Hajeb we visited again dear old Azrou. Again we were forced to take an armed escort with us on all our excursions. Unfortunately bad weather set in and it rained and became very cold at Azrou. We therefore did not remain very long, but nevertheless collected the more important birds of the neighbourhood.

A *Parus major lynesi* ♂ shot had a wing of 80 mm.

Of *Certhia brachydactyla raisulii* Bannerm. we shot a female, which was evidently laying, on April 29th. Wing ♂ 69, ♀ 63 mm.

From Azrou we took autobus down via Rabat and Casablanca to Marrakesh. At Casablanca I saw *Apus affinis galilejensis* under the roof of a house on one of the main roads. This species is extending its range. It now breeds at Oran, where formerly it did not occur. It is said to *winter* in Tunis, where it nests on the cathedral, where it was first seen by Blanchet and Lavauden, but did not occur during Koenig's and Whitaker's visits.

On a ♀ specimen shot near Marrakesh on May 7th I found the neck and sides of body moulting!

During our stay at Marrakesh the French entomologist Dr. Ungemach was also there, and Flükiger and I accompanied him on several of his trips. We went with him to the rocky range of Djebilet north of Marrakesh, and found there *Lanius excubitor dodsoni* quite common. While near Marrakesh the common Crested Lark is *Galerida cristata riggenbachi* (only once did I come across a *G. theklae ruficolor*!), on the Djebilet hills *Galerida theklae ruficolor* is quite numerous, and no *G. cristata* is seen.

We also stayed a night in a forester's house at Agaïouar, 1,800 m. high in the Great Atlas, south of Marrakesh. We travelled in Dr. Ungemach's car, and it took quite a time to ascend to Agaïouar, the greater part over quite new roads, mostly built by légionnaires. Near that place it is all forest, but not of high trees, mostly bushes. Going up we saw flocks of Red-billed Choughs, and one of the White-billed species (*Pyrrhocorax pyrrhocorax* and *graculus*). Near Agaïouar *Alectoris barbara barbara* is not rare, and *Cardaelis cannabina mediterranea* occurred in large flocks on May 11th. They had evidently already nested.

A flock of Red-rumped Swallows, *Hirundo daurica rufula* appeared in the afternoon and were obviously looking for breeding-places; they were, however, disappointed, and left again after a short stay of an hour or so, though the altitude, 1,800 metres, did not seem to disturb them.

The days were wonderful at Agaïouar; the outlook was magnificent—one could see the tower of the Koutoubia, and at night the lights of the town of Marrakesh. The night became, however, cold, and in the morning there was hoar frost on the grass all round the forestry buildings. In the evening not a single moth came to the lamp Dr. Ungemach had put out in a suitable place—it was evidently too cold. Except a species of *Zygaena*, no interesting lepidoptera were caught.

When we were down again at Marrakesh bad weather set in. Nearly three days and nights a number of thunderstorms came down, and all along the Atlas very bad weather raged, so that the roads became dangerous for automobiles,

and we were unable to go to Telouet, in the Glaoui country, as the chauffeurs declared it to be impossible. We made a trial trip and could only agree with them. Such weather is extremely rare late in May.

We left then Marrakesh and returned to Rabat. On the last of May we went homewards again, by road to Tangiers in an automobile omnibus, a trip which is now accomplished in about five hours. Unfortunately rain set in at the moment we left Rabat, and we had by no means a pleasant journey, while at Tangiers it was very fine again. The next day we crossed over to Gibraltar and returned from there to London.

The chief ornithological results of this journey were two new species for Algeria and Marocco :

Riparia obsoleta spatzi on the rocks of the northern edge of the Sahara, and

Larus melanocephalus, observed for the first time in Marocco. Where do these nest ? There must be breeding-places farther westwards than hitherto known in the Mediterranean. The flat ponds on which I observed them near Rabat dried up in about a fortnight.

CROSSING THE GREAT ATLAS IN MAROCCO IN 1930.

By ERNST HARTERT.

IN 1930 I went once more to Morocco, on a short trip, in the month of July, and consequently particularly interesting for me. I left London on a P. & O. boat, the *Moultan*, with my trusted companion, Frederick Young, from the Tring Museum, on June 27th, and arrived at Gibraltar July 1st, 1930. On July 2nd we reached Casablanca, and went to Marrakesh the following day. Three days later we left for Telouet.

My chief object was to observe the bird life on the southern slopes of the Great Atlas, and, if possible, to get a specimen of the rare *Rhodopechys sanguinea aliena* Whit., of which the only known three specimens were got not far from Telouet ("at Glaoui in the Atlas"). Telouet is the residence of the pacha El-Hadj-Tsehami-El-Glaoui, the greatest and richest of the Atlas chiefs, who is a friend and admirer of the French; he now only resides temporarily in Telouet, and lives principally in his very fine house in Marrakesh.

The French have now built two fine automobile roads across the Atlas, one by Telouet. The chief road makers of these roads were the men of the Foreign Legion. For the greater part the Telouet road follows the Oued R'dat, and it is very beautiful, giving fine views in many places. The native villages are mostly hard on the river, and often deep below the road. Very good irrigations often go from the river for miles to fields and plantations. Enormous old chestnut trees adorn most of the inhabited places. It is to me very peculiar, and I have no good explanation that the Oued R'dat is not inhabited by any of the rare alpine birds found elsewhere in the Atlas: there are no *Cinclus*, no white Wagtails (*Motacilla alba subpersonata*), no Morocean Sand-Martins (*Riparia paludicola mauritanica*). One passes no real forests, only one open bush-wood, in which there seem to be not many of the Morocean forest birds. The vegetation however, gets very much more interesting and alpine, and it is very different from that of the Middle Atlas. Alpine butterflies appear also in the higher regions, and up on pass Tizi-n-Tichkan the *Zygaena aurata blachieri* Rothsch. (Nov. Zool. 1931, p. 199) was discovered, and as well a single *Z. orana harterti* Rothsch. was obtained.

Immediately below the pass, on the southern slopes, at about 2,000 metres, open forest begins and stretches a good way. I saw no remarkable birds in these woods, but the interesting rock-squirrel, *Atlantoxerus getulus*, was observed at an open space. Lower down the forest disappears again, and one descends considerably, until the peculiar old castle of the pacha of the Glaoui comes in sight. It is strongly fortified and of great extent, and several stories high.

Nearly two miles from Telouet is the French fort of the same name, during our visit occupied by a company of the Foreign Legion. We were granted two bedrooms and had to take luncheon and dinner with the officer of the "Bureau Arabe" and one or two others in a building outside the fort, near the house in which we slept. The weather during our visit was wonderful. While it was hot in the day, the temperature fell considerably during the night. Every day a

strong west wind came up about midday and blew for several hours, sometimes unpleasantly strong.

The bird life was about the same as on the northern slopes of the Great Atlas. On the open hammada, on which we lived, *Galerida theklae ruficolor* was common, *Oenanthe deserti homochroa*, *Oenanthe hispanica hispanica*, *Anthus campestris campestris* were not rare. On and near the Kasbah *Passer domesticus tingitanus*, *Emberiza striolata sahari*, and a few *Hirundo rustica* were always seen. The fine *Comatibis eremita* which nests in the Sous valley comes up sometimes, and a flock spent an hour here feeding on a field about a fortnight before our visit. Storks were seen nearly every day. Along the river are trees and gardens. In these *Serinus canaria serinus*, *Hippolais pallida opaca* (only twice seen), *Emberiza striolata sahari*, *Carduelis cannabina*, *Muscicapa striata*, *Carduelis carduelis*, *Turdus merula mauritanicus*, *Falco tinnunculus* and some pairs of *Streptopelia turtur arenicola* ; of the last thousands passed through on migration in April ! There can be no doubt about this, as I heard detailed accounts of it. Where did they come from ? ! *Quails* were met with twice in the native gardens by the river. On steep rocks near by *Columba livia* nested, but I did not obtain one. Once I saw an *Aquila bonellii*, once a pair of *Circaetus gallicus*, twice *Buteo rufinus cirtensis*, several times *Corvus corax tingitanus* were observed. Lieutenant Amilakrari, a Eurasian who was officer in the Foreign Legion, took us to a place where he knew *Alectoris barbara barbara* to exist. It was a two hours' journey over an awful stony region with very little vegetation. For a long time we searched in vain for the *Alectoris*, but at last Amilakrari came across a covey and shot four, of which Young skinned three. They were in full moult, but did not seem to differ from specimens from north of the Atlas. At a small village we passed we saw *Oenanthe leucura syenitica* and shot one of them. In vain did we search for *Rhodopechys sanguinea aliena* which must have been obtained near Telouet. Neither on the castle nor anywhere else could we see a trace of them, and neither the officers nor the natives knew anything about them.

The occurrence of the above-named species is interesting, as most of them had not been observed at such a high altitude, for the pass of Tizi-n-Tichkan is quite 2,000 m. high, and the castle of Telouet is 1,960 m.

Of butterflies the commonest was the *Melanargia galathea meade-waldoi*, but none of the rare *Satyri* and *Zygaenae* were met with. Enormous numbers of a medium-sized grasshopper and a number of other species of *Orthoptera* inhabited the more fertile places, and I collected a number of them, but they miraculously disappeared from the Tring Museum before they were taken up to the British Museum.

We stayed a week at Telouet and then returned to Marrakesh, where it was very hot, while when we were there a little over a week before it had hardly been warmer than on a hot summer day in England. The surroundings were very dry, but the rare "Copper" *Chrysophanus phoebus* was almost as common as it had been in other years in May and beginning of June.

As soon as we could get away we returned to Rabat, and from there to El-Hajeb under the slopes of the Middle Atlas. It had become too dry there for many butterflies, and the bare-necked Ibis, *Comatibis eremita*, had left their nesting-place, though a small flock flew round in silence. We spent a day at Ifran, and another at dear old Azrou. We made a long trip from there over the mountains and for the first time saw and caught 8 specimens of *Argynnis lyauteyi*,

some already worn, but others quite fresh, as if just emerged. At Ifran we caught *Argynnis lathonia*, which resembles the rare *lyauteyi* at a distance. Outside the forests, in the open, *Satyrus briseis major* was common.

On July 25th we left Rabat by the very small boat of the Bland Line and on the 28th we sailed from Gibraltar on the s.s. *Malwa*, arriving at London on the 1st of August.

Undoubtedly July is too late for bird collecting in Morocco, all birds being in moult and badly worn. But for butterflies the higher ranges of the Atlas, where there are forests, and the bare peaks, are most interesting localities, and well worth visiting for longer periods.

TWO NEW SPECIES OF *MAZUCA*, AN AFRICAN GENUS OF *AGARISTIDAE* (LEPIDOPTERA).

By KARL JORDAN, Ph.D., F.R.S., F.R.E.S., F.Z.S.

(With 8 text-figures.)

THE difference between *Noctuidae* and *Agaristidae* being one of degree, the position of *Mazuca* Walk. 1866 depends on the view one takes as to the extent of the *Agaristidae*. Aurivillius, Strand, and I have regarded *Mazuca* as being an Agaristid, whereas Hampson placed it with the Noctuids (*Lep. Phal.* ix. p. 347 (1910)). Two species are known : *M. haemagrapha* Hamps. 1910, and *M. strigicincta* Walk. 1866. The former is represented at Tring by the type, the only specimen recorded. The second species has been described under four different names in four genera, the synonymy given by Hampson, *l.c.*, being quite correct. I add here two new species. One of them is near *M. strigicincta* and the other resembles in some points *M. haemagrapha*.

1. **Mazuca dulcis** sp. nov.

♀. Markings of body as in *M. strigicincta* ; on foretibia three blue-black spots, on midtibia two, on hindtibia a vestigial subapical one, segment I of fore- and midtarsi with a conspicuous blue-black spot (absent from *M. strigicincta*), this spot vestigial on hindtarsus.

Upperside of forewing sulphur-yellow, black markings at costal margin and termen as in *M. strigicincta*, but the seventh and eighth bars counted from base red near their discal ends, the basal double spot in front of the submedian vein and the subbasal cell-spot red, with a few blue-black scales, at hindmargin five red bars, proximal pair at basal third less anguliform than in *M. strigicincta*, interrupted on submedian, the posterior half of the outer bar with some blue-black scales at both ends ; of the three postmedian bars the proximal one straight and oblique as in *M. strigicincta*, the other two rectanguliform, the discal arm of proximal one of the two anguliforms joined to oblique bar and forming a right angle with it, the three red bars with minute blue-black dots at hindmargin, on submedian vein and on submedian fold ; the marking in apex of cell as in *M. strigicincta*, but the proximal ring or double bar for the greater part red ; the two red discal spots rather larger than in *M. strigicincta*, blue-black at each end.

Length of forewing : 20 mm.

West Africa : Ibadan, Lagos, xii.1905, 1 ♀.

2. **Mazuca amoena** sp. nov. (text-figs. 54, 55, 56).

♂. Easily recognized by the large orange-scarlet elliptical discal ring on the forewing. Markings on body nearly as in *M. haemagrapha*, but the transverse bars on the thorax thinner, the patagia not edged with blue-black, the tarsi with a spot on upperside of segments III and IV. Scaling of antenna white in basal fourth and at apex.

Forewing as in *M. haemagrapha*, narrower than in *M. strigicincta*, more strongly rounded distally, tornal angle effaced; black bars at costal and distal margins as in *M. haemagrapha*, but thinner and therefore less liable to coalesce, the two before tornus quite separate; from hindmargin costad to central markings six thin orange-scarlet lines, nearly evenly spaced, first and second parallel, third and fourth curved and, at submedian fold, coalescing and then separating, encircling below cell a small space of the ground-colour, posteriorly these two lines a little wider apart than the others, fifth slightly elbowed on submedian fold, leaning a little distad like the sixth, all except first blue-black at hindmargin, seventh line black, on lower angle of cell a small black ring with black pupil as in *M. haemagrapha*, proximally of this eye-spot an orange-scarlet spot, upon which follow in the direction towards base three black rings, and an indication of a fourth, behind these rings and down to base an orange-scarlet irregular stripe which the red hindmarginal lines join; beyond lower cell-angle an elliptical orange-scarlet ring (instead of the orange-scarlet patch of *M. haemagrapha*), the line itself a little over ½ mm. thick, broken at lower cell-angle by the eye-spot, from which a thin blue-black line runs a short distance along the inside of the ring, inner longitudinal diameter of ring nearly 3 mm., transverse 2 mm., the marginal bars join the ring; in front of eye-spot an ovate ring in *M. haemagrapha*, this ring larger in *M. amoena*, but incomplete, being interrupted costally.

As in *M. haemagrapha*, the areole short, very little projecting beyond lower cell-angle, stalk of $SC^{3,4}$ short.

Genitalia.—Anal tergite with a spiniform uncus, which is much shorter in both *M. amoena* and *M. haemagrapha* than in *M. strigicincta*. Clasper much longer and broader in *M. haemagrapha* than in two other species (♂ of *M. dulcis* not known to me), and shortest in *M. amoena*; for comparison we figure the claspers of these three species, their aspects from outside and inside. In *M. strigicincta* (text-figs. 50, 51) the clasper is nearly straight, rounded-narrowed at apex; on inside (fig. 51) the basal half of the ventral portion is much swollen and enlarged dorsad; from the narrow distal portion of this swelling a narrow, subventral, rod-like, transversely more or less convex ridge (H) extends halfway to apex, the ridge not separated from inner surface of clasper, not being a free process. In *M. haemagrapha* (text-figs. 52, 53, 57) the clasper is about one-fourth longer than in *M. strigicincta*, its ventral margin almost gradually curved dorsad; the tip of the harpe (H) visible in externo-lateral aspect (fig. 52); on inside (fig. 53) the basal half of the ventral area swollen and enlarged dorsad, this swelling widest distally; it narrows into the harpe, which is narrow for a short distance and then is widened dorsad into a process curved distad and mediad, the process appearing narrow in an aspect perpendicular on the inner surface of the clasper, and broader in a ventral aspect (fig. 57). In *M. amoena* (text-figs. 54, 55, 56) the clasper about half as long as in *M. haemagrapha*, rather strongly narrowed to apex; a dorso-marginal area inclusive of apex sublinear, more strongly chitinized than the ventral area adjacent to it; on inner side (fig. 55), the basal swollen area resembling that of *M. haemagrapha*; the harpe very different, its free process narrow, almost pointed, directed dorsad-inward and slightly curved frontad.

Length of forewing 16 mm., width 8 mm.

Congo Belge: Sashila R., 5.x.1925, 1 ♂.

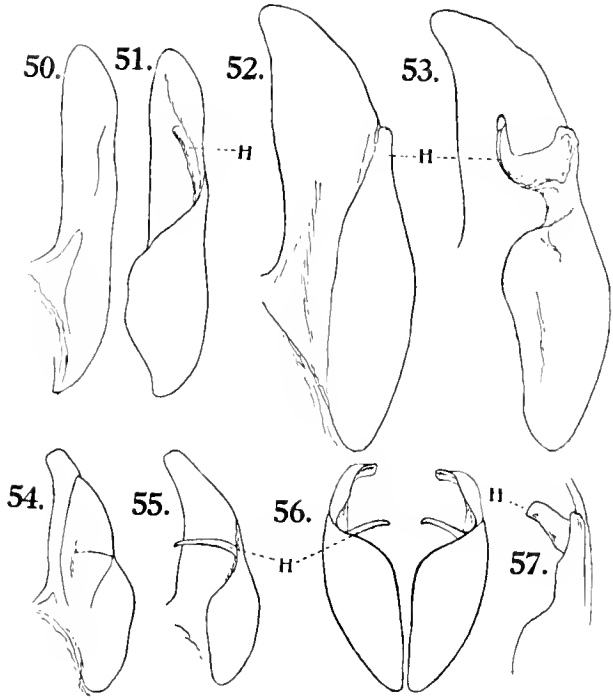


Fig. 50. *Mazuca strigicincta*, clasper from outside.
,, 51. ,, ,, ,, ,, inside ; H = harpe.
,, 52. ,, *haemagrapha*, clasper from outside.
,, 53. ,, ,, ,, ,, inside.
,, 54. ,, *amoena*, clasper from outside.
,, 55. ,, ,, ,, ,, inside.
,, 56. ,, ,, ventral aspect of claspers.
,, 57. ,, *haemagrapha*, harpe, ventral aspect.

A NEW SPHINGID FROM MADAGASCAR (LEPIDOPTERA).

By DR. KARL JORDAN, F.R.S., F.R.E.S., F.Z.S.

(With 4 text-figures.)

Temnora engis sp. nov. (text-figs. 58–61).

♂. Near *T. grandidieri* Butl. 1879. General colouring the same, except that the upperside of the hindwing is brick-red with a diffuse brown border, and the underside of body and wings more distinctly brick-red than in *T. grandidieri*. Antenna shorter. Apex of forewing less produced, the subtornal sinus of hindmargin less deep, the outer margin of hindwing less incurved before anal angle, and both wings broader. On forewing, no diffuse dark shade from tornus obliquely to costal margin, close on basal side of middle of costa a small isolated brown blotch, at hindmargin as in *T. grandidieri* the obsolete or obsolescent lines of outer half of wing represented by four distinct bars, these somewhat farther away from termen in the new species and the innermost, or first, line more prominent and anteriorly slightly curved basad-costad, its general direction being towards basal half of costa, not towards outer half, the next line closer to the first than to the third; submarginal-subapical brown dot farther away from margin than in *T. grandidieri*.

Underside with the lines and dots of *T. grandidieri* very feebly indicated; on forewing a brown terminal border obscured by grey, the border projecting basad before middle, nearly 3 mm. broad before tornus; brownish border of hindwing narrower than the one on forewing and less distinct.

Genitalia (text-figs. 9–12): X.t. and X.st. (fig. 58) broader and considerably shorter than in *T. grandidieri*, apex of tergite (X.t.) convex above, subcarinate, concave below; sternite (X.st.) shorter and much broader than tergite, somewhat rounded-narrowed towards apex, not at all pointed, very feebly curved upwards, with indication of an apical median sinus. Clasper with about 10 large friction scales; harpe (figs. 59, 60) broader than in *T. grandidieri*, the free apical portion ventrally convex, subdorsally concave, at extreme tip the concavity dorsal. Aedeagus (= penis-sheath) (fig. 61) with a dentate flap on the right side nearly as in *T. grandidieri*, and a very short dentate one on the left (instead of the long thin pointed left process of *T. grandidieri*).

Length of forewing 22 mm., width 11 mm.

Madagascar: Forêt d'Anamalazotra, Station Perinet 140 km. east of Tananarivo, 11.xii.1930 (Mme. d'Olsoufieff), 1 ♂.

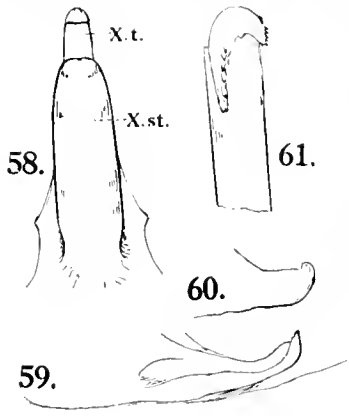


Fig. 58. *Temnora engis*, X.t. = tenth tergite, X.st. = tenth sternite, ventral aspect.
,, 59. *Temnora engis*, harpe, lateral aspect.
,, 60. ,, ,, ,, dorsal aspect,
,, 61. ,, ,, aedeagus.

FOUR NEW FLEAS COLLECTED BY PROFESSOR F. SPILLMANN IN ECUADOR.

BY DR. KARL JORDAN, F.R.S., F.R.E.S., F.Z.S.

(With 6 text-figures.)

1. **Hoplopsyllus andensis** sp. nov. (text-fig. 62).

♀. Differs from *H. glacialis* Tasch. 1880 and *H. exoticus* J. & R. 1921 in the pronotal comb extending farther down the sides, consisting of 20 spines, which, moreover, are less pointed than in the allied species. The bristles on abdominal segments VII and VIII as in *H. exoticus* (cf. *Ectoparasites*, i, p. 312, text-fig. 314);

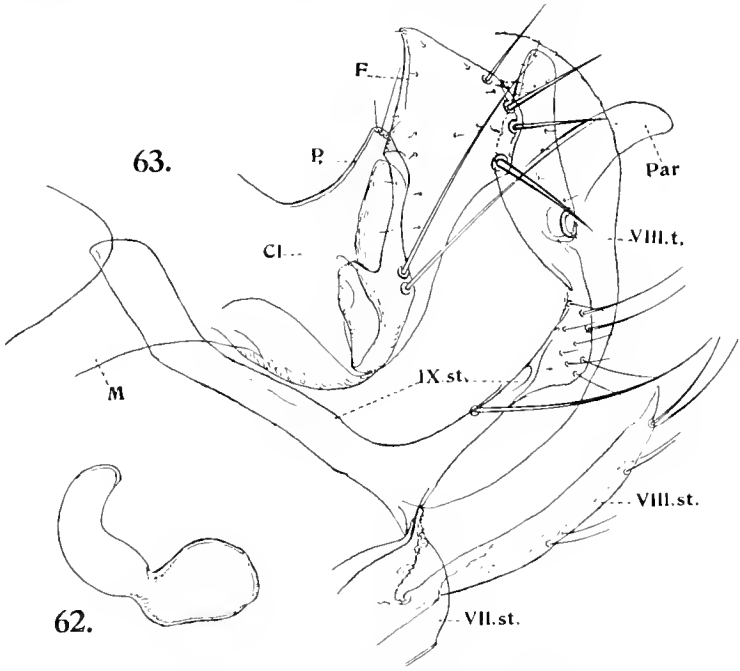


FIG. 62.—*Hoplopsyllus andensis*, spermatheca.
FIG. 63.—*Ceratophyllus equatoris*, ♂-genitalia.

the ventral excision of VII.st. as deep as in *H. exoticus*, but the specimen not flattened enough for comparing the width of the excision. Stylet as in *H. glacialis* (and its subspecies), i.e. shorter than in *H. exoticus*, with two lateral bristles. The head of the spermatheca (text-fig. 62) smaller than in *H. gl. glacialis* and *H. gl. lynx* Baker 1904, whereas the tail is broader (the organ not preserved in the unique specimen of *H. exoticus*).

Ecuador: Paramo de Guamani, on road to Baiza, Region Oriental, on *Thomasomys* sp., 29.vii.1931, 1 ♀.

This discovery extends the range of the Northern genus *Hoplopsyllus* into South America; *H. exoticus* was obtained at Panama.

2. **Ceratophyllus equatoris** sp. nov. (text-figs. 63, 64).

♂♀. Close to *C. apollinaris* J. & R. 1921, of which only the ♀ is known; the ♀ of the new species differs in the upper lobe of VII.st. being much broader and rounded.

♂. The VIII.t. strongly rounded, bearing 6 or 7 dorso-marginal bristles, of which the 2 or 3 distal ones are long, and in addition 6 long lateral bristles, of which one is ventral. VIII.st. long and narrow, about one-eighth shorter than first hindtarsal segment, convex beneath, nearly straight above, pointed, ventrally with a pair of short bristles each in middle and at apical fourth, and a longer pair before apex. Bay above manubrium of clasper (text-fig. 63) evenly rounded, parabolical, not semicircular; manubrium (M) measured on upperside from deepest point of bay as long as clasper measured from the same point to the posterior margin above the acetabular bristles. Dorsal margin of clasper (Cl) incurved, this bay flatter than a semicircle; process P irregularly triangular, being somewhat convex on the posterior side; upper acetabular bristle on a level with the lowest point of the anterior margin of the exopodite F. Angle of anterior margin of exopodite in middle of margin, the exopodite from this point upwards about twice as wide as in lower half; opposite the angle of the anterior margin, at the beginning of the widened portion, a large spiniform, above this bristle the posterior margin about parallel with the anterior margin, slightly incurved, then strongly rounded and running obliquely upward-forward, forming with the anterior margin an acute apical angle, the tip of which is a little bent frontad; at the curve of the posterior margin 2 strong bristles about half the width of the large one below them, and farther upward a paler bristle, thinner and shorter. Apical portion of vertical arm of IX.st. but little dilated; ventral sclerite narrow to point of division at one-third, then ventrally slightly rounded-dilated, this antemedian portion bearing about 10 bristles, of which the 2 ventral distal ones are long, but pale; the apical lobe of the ventral arm dorsally as long as the rest of the sclerite, convex above, broadest about middle, at apex more rounded ventrally than dorsally.

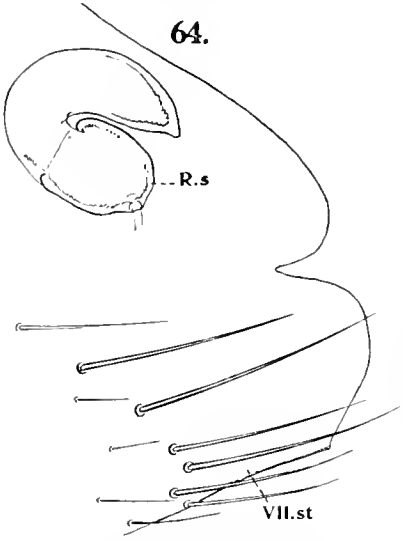


FIG. 64.—*Ceratophyllus equatoris*, VII.st. and spermatheca.

♀. VII.st. (text-fig. 64) divided by a narrow triangular sinus into two rounded lobes, of which the lower one is much the broader. Head of spermatheca about half the length of the tail, somewhat abrupt at the juncture with the tail.

Length: ♂ 2·7 mm., ♀ 3·3 mm.; hindfemur: ♂ 0·43 mm., ♀ 0·53 mm.

Ecuador: Quebrada of Pichan, west side of Pichincha, on *Sigmodon* sp., 4.ii.1932, 1 ♂, type; Paramo de Guamani, on road to Baiza, Region Oriental, on *Oryzomys* sp., 27.vii.1931, 1 ♀.

3. **Plocopsylla heros** sp. nov. (text-figs. 65, 66).

♂♀. Near *Ploc. achilles* Roths. 1911 ; genal comb with 4 spines only, the upper spine of *Ploc. achilles* being absent in the new species ; the hindcoxa narrower, the stylet longer, and the spermatheca and the ♂-organs different. Distinguished from *Ploc. phobos* Jord. 1931, which also has 4 genal spines, by the genal and pronotal combs as well as the stylet and the pair of antepygidial bristles being much longer, the head of the spermatheca shorter and the ♂-genitalia different.

♂♀. Genal spines three to four times as long as broad. Pronotal comb with

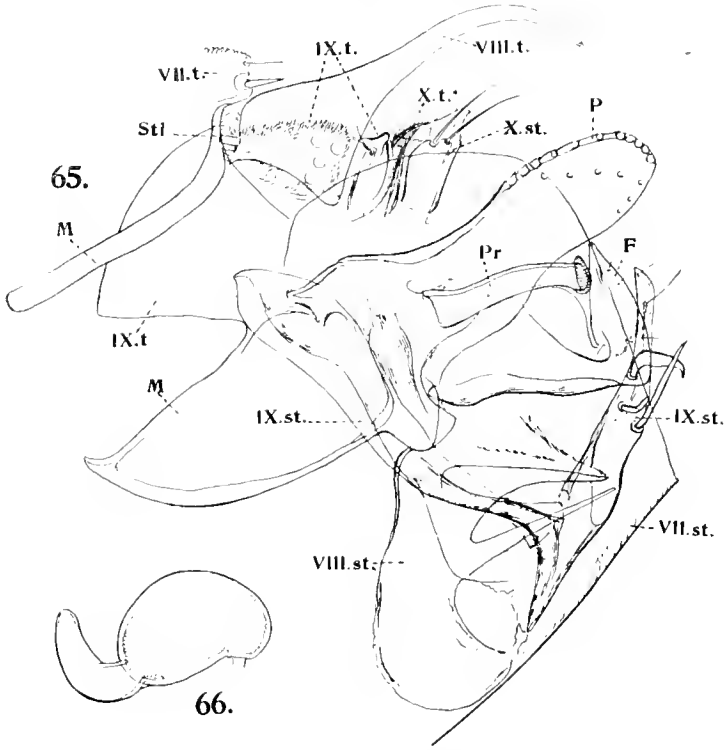


Fig. 65.—*Plocopsylla heros*, ♂-genitalia.
,, 66.— ,, ,, spermatheca.

14 spines, in one ♀ with 16 ; the dorsal spines one-sixth shorter than their distance from the dorsal anterior corner of pronotum. Bristles on abdominal tergites : in ♂ III 7 or 8, 12 to 15, IV 7 to 10, 14, V 6 to 12, 14, VI 3 to 6, 14, VII 2 to 4, 13 or 14 ; in ♀ III 13 to 16, 17 or 18, IV 13 to 15, 14 to 16, V 7 to 11, 13 or 14, VI 6 to 11, 11 or 12, VII 9 to 16, 8 to 11. On sternites : in ♂ III 5 or 6, IV 5 or 6, V 0 or 1, 5 or 6, VI 0 to 2, 5 ; in ♀ III 4 to 8, 6, IV 2 to 10, 6, V 5 to 7, 6, VI 6 to 11, 6. Some of the dorsal bristles of the anterior tergites of ♂ long. One antepygidial bristle in ♂, not longer than the anterior bristles of VII.t., but thicker than the ventral bristle of the posterior row of that segment. On forecoxa more than 30 bristles in addition to the short basal ones.

♂. VIII.t. (text-fig. 65) long, triangular, tapering. VIII.st. on each side

with two lobes, the upper triangular, the lower very slender, almost linear. Inner portion of IX.t. and manubrium of clasper longer than in *Ploc. achilles*, the angle formed by them acute. P of clasper longer and narrower than in *Ploc. achilles*, with a marginal row of 12 or 13 long bristles, of which the fourth or fifth to seventh or eighth are a little shorter than the others ; distally at ventral margin 3 or 4 small bristles and on the side 4 to 7 shortish slender ones. Process Pr narrow, at apex dilated and ribbed, recalling by its shape (lateral aspect) a wading boot. Exopodite F ventrally about one-half longer than apically broad, distally tapering upwards, the posterior margin somewhat convex, ventral angle rounded, near this angle a heavy spiniform, which is different in shape from the corresponding spiniform of the other species of *Plocopsylla*, its short narrow basal portion being vertical, whereas the rest of the spiniform is more or less at a right angle to the basal portion, and broad, dorsally and ventrally convex, narrowing to a point, the tip being curved down. Ventral arm of IX.st. with long proximal heel, in middle of ventral margin a broad shallow bay and beyond it a long pointed spiniform which is directed distad and lies along the segment ; a short distance beyond this spiniform a short, cylindrical, obtuse, elbowed and twisted spiniform, its apex directed distad, the segment somewhat narrowed from the long spiniform to apex, this portion bearing 2 small hairs, one apical, the other a little more proximal.

♀. Two antepygidial bristles each side, stout, twice as long as hindtarsal segment IV. Stylet longer than in *Ploc. achilles*, as long as hindtarsal segment III. On each side of VIII.t. from 18 to 25 bristles. Body of spermatheca (text-fig. 66) almost bean-shaped, dorsally evenly rounded, widest in or behind middle, not near tail as in *Ploc. achilles*.

Ecuador : Bermeji, on way to Baiza, Region Oriental, off *Blarina thomasi* ; Quebrada of Pichan, west side of Pichincha, 2,950 m., 19.iv.1932, on *Blarina thomasi* and *Bl. equatoris* ; Pichincha, on *Bl. equatoris*, 28.ix.1931 ; Chimborazo, iv.1931, on *Sigmodon* : 5 ♂♂, 5 ♀♀.

4. **Sphinctopsylla spillmanni** sp. nov. (text-fig. 67).

♂. Considerably different from the other known species of *Sphinctopsylla* quite apart from the genitalia : segment 1 of maxillary palpus shorter, proboscis longer, none of the spines of the pronotal comb drawn out into a fine point, apex of hindtibia with but 4 stout bristles instead of a complete comb of 7 or 8, and forecoxa with a smaller number of bristles. These distinctions will probably also hold good in the as yet unknown ♀.

♂. Helmet narrow, widest at spines 6 and 7, here one-fourth wider than these spines are long ; 13 spines each side. The anterior long bristle on the genal area nearer to the ventral margin than is the posterior one. Five genal spines ; in between the upper two the genal process, which is pale and narrow and reaches beyond the apex of the spines. On each side of occiput a subapical row of 8 bristles and between this row and base of occiput altogether about 18 bristles (inclusive of basal ones), 5 on side being long, the others small and very small. None of the bristles of antennal segment II reach beyond middle of club. Labial palpus extending well beyond maxillary palpus.

Pronotum short, with two rows of 10 bristles each on the two sides together ; comb with 18 spines, the dorsal ones as long as the pronotum. Bristles on mesonotum 10, 10, on mesopleura 7, on metanotum 3, 10, 10, on metepimerum 3, 3.

Number of apical spines on abdominal tergites (the two sides together): 4, 6, 4, 4, 4, 2; bristles on I 9, 10, II 8, 15, III 9, 15, IV 6, 15, V 3, 13, VI 5, 12, VII 5, 10; bristles on sternites: II 2, III 6, IV 5, V 4, VI 4, VII 8, the bristles on VII almost spiniform, 4 in a close-set row on each side.

Forecoxa with 22 long bristles and a small number of marginal and basal short ones. On outside of hindfemur a row of 3 bristles in posterior third and at upper margin 12 short ones. In the notches of hindtibia from base around apex

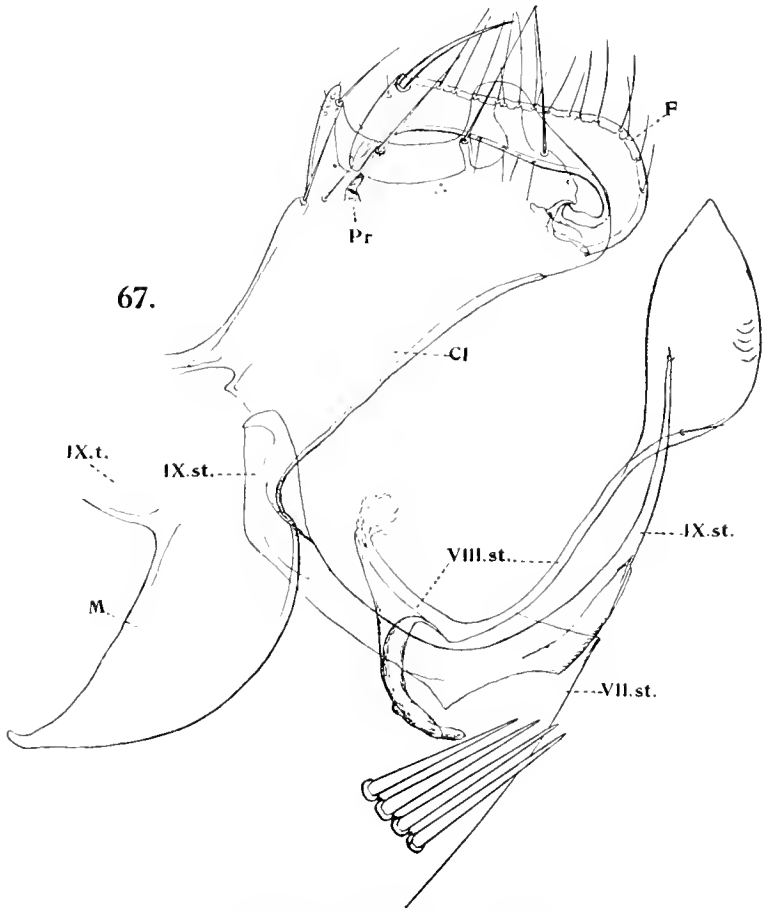


FIG. 67.—*Sphinctopsylla spillmanni*, ♂-genitalia.

to anterior apical corner 13 bristles, which are much less stout than in the allied species, there being in dorsal notches I, II, and III 1 long and 1 short bristle, in IV, V, and VI 2 short and 1 long; on the outer surface 14 lateral bristles on the one tibia and 16 on the other (inclusive of 2 apical bristles).

Modified Segments.—VIII.t. large, with the posterior and ventral margins rounded; below stigma 1 bristle. Basal portion of VIII.st. vertical, narrow, sublinear, curved distad, the frontal side being convex, upper third triangular, the lower portion of this triangle drawn out ventrad-distad on the posterior side into a long narrow process which distally widens into a leaf-like ellipse with the

apex pointed, at base of this ellipse a small bristle. Manubrium M of clasper a little over half as broad as dorsally long ; angle between manubrium and IX.t. obtuse, rounded. Clasper (Cl) longer than broad, broadest in middle, dorsal margin enlarged medianly into a triangular upward projection and at apex into a broad, transparent lobe ; ventral margin nearly straight, slightly concave ; at and near dorsal margin 5 or 6 bristles, on inner surface a subcylindrical, strongly chitinized projection (Pr) which is longer than broad and serves as a catch for the end of the exopodite, the projection longer than in the allied species. Exopodite F sublinear, about 5 times as long as broad, basally curved almost in a semicircle from base downwards and then upwards-frontad, at apical fourth (about) of hindmargin a long bristle, gently curved downwards, from this point to apex the sclerite narrowed, with the tip rounded off, the exopodite recalling an antelope with an exaggeratedly long neck ; from the long bristle to the most ventral point of the hindmargin 14 or 15 thin bristles, about half of them shorter and the others longer than the exopodite is broad ; above the long bristle a short lateral one, at the anterior margin 5 thin bristles, and on the inner surface about 10 to 12 very small ones. Vertical arm of IX.st. apically slightly bent posticad, the posterior margin of the vertical arm and the upper margin of the ventral one forming an even semicircle ; ventral arm tapering, the point of bifurcation proximal to middle, the apical process quite narrow, distally linear, with a small apical bristle and a minute ventral subapical one.

Length : 2·7 mm. (extended), hindfemur : 0·33 mm.

Ecuador : Pichincha, off *Caenolestes fuliginosus*, 27 IX. 1931, 1 ♂.

I have much pleasure in associating the name of the discoverer with this remarkable species.

TWO NEW SPECIES OF *CTENOPHTHALMUS* FROM TROPICAL AFRICA (SIPHONAPTERA).

By DR. KARL JORDAN, F.R.S.

(With 4 text-figures.)

AMONG a small number of fleas collected in Kenya and Uganda and submitted to me for examination and description by Mr. G. H. E. Hopkins, of the Department of Agriculture, Kampala, Uganda, there are some specimens of *Ctenophthalmus* which are different from all our examples of that genus and, according to the male genitalia, represent two new species. I am much indebted to Mr. Hopkins for this addition to our knowledge of the African flea-fauna. Types at Tring; some paratypes returned to Mr. Hopkins.

1. **Ctenophthalmus modicus** sp. nov. (text-figs. 68, 70).

♂♀. Nearest to *Ct. evidens* Jord. 1929, described from Congo Belge; differs in the tail-ends.

♂. On each side of VIII.st. 6 to 10 bristles, of which the 3 posterior ones are the longest. Clasper (Cl, text-fig. 68) dorsally about as long as the distance of the dorsal margin from the long subventral acetabular bristle (acb); apex of clasper incurved instead of being rounded as in *Ct. evidens*, two short projections being formed; at the dorsal margin of the upper lobe (P^1) and on its side a slightly variable number of bristles, of which 3 lateral ones are long. Exopodite F as in *Ct. evidens*, but shorter, its apical portion from the transverse ridge (against which plays the tip of P^2 of clasper) to the apical margin only half as long as it is broad; below the posterior apical angle 3 or 4 long bristles; along the dorso-apical margin the usual pale spiniforms, 7 to 9 in this species. Manubrium of clasper somewhat shorter and basally broader than in *Ct. evidens*. IX.st. with the ventral arm long, as in *Ct. evidens*, but less curved upwards.

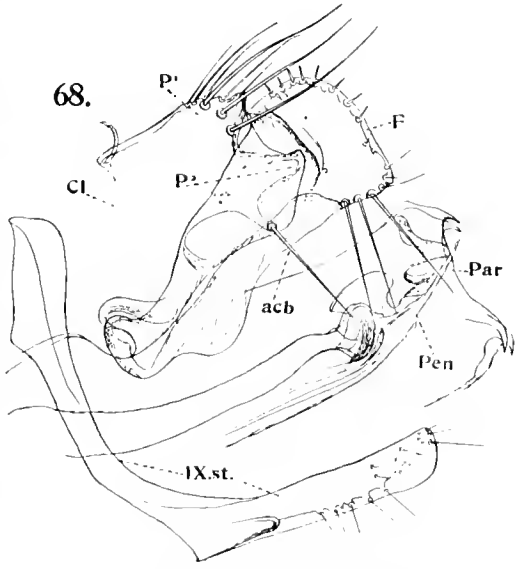


Fig. 68.—*Ctenophthalmus modicus*, ♂-genitalia.

♀. The specimens of this sex which I place with the above males may possibly not be the true females of *Ct. modicus*. They resemble that sex of *Ct. atomus* J. & R. 1913, from Angola, but are distinguished by the apical lateral margin

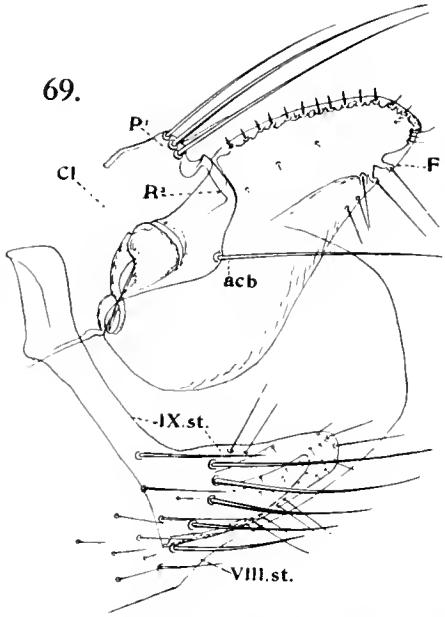


FIG.—69.—*Ctenophthalmus bacopus*, ♂-genitalia.

of VII.st. being medianly more strongly produced and ventrally more slanting (text-fig. 70); at the apical margin of VIII.t. a long bristle and above this a short one (sometimes 2); above the stigma of VIII.t. from 0 to 2 bristles each side. The body of the spermatheca about as long as its tail.

Kenya: Nakuru, off *Lophuromys* sp. and *L. aquila*, x.1928, type, and off *Rattus rattus*; Kisii, off *Rattus rattus* and *Otomys angoniensis*; 5 ♂♂, 4 ♀♀.

2. **Ctenophthalmus bacopus** sp. nov. (text-figs. 69, 71).

♂♀. Near *Ct. cabirus* J. & R. 1913 and *Ct. ansorgei* Roths. 1907, the former a common species in East Africa and the latter only known from Angola.

♂. On each side of VIII.st. from 10 to 16 bristles, of which the 5 posterior ones (or 6) are longest and form an oblique row. Clasper (Cl, text-fig. 69) divided by a small sinus into two processes as in the allied species, but the upper process P¹, which bears 3 long bristles, narrower than the lower one, not broader as in the case of *Ct. cabirus* and *Ct. ansorgei*; acetabular bristle (acb) inserted on a level with the upper margin of the acetabulum, whereas in

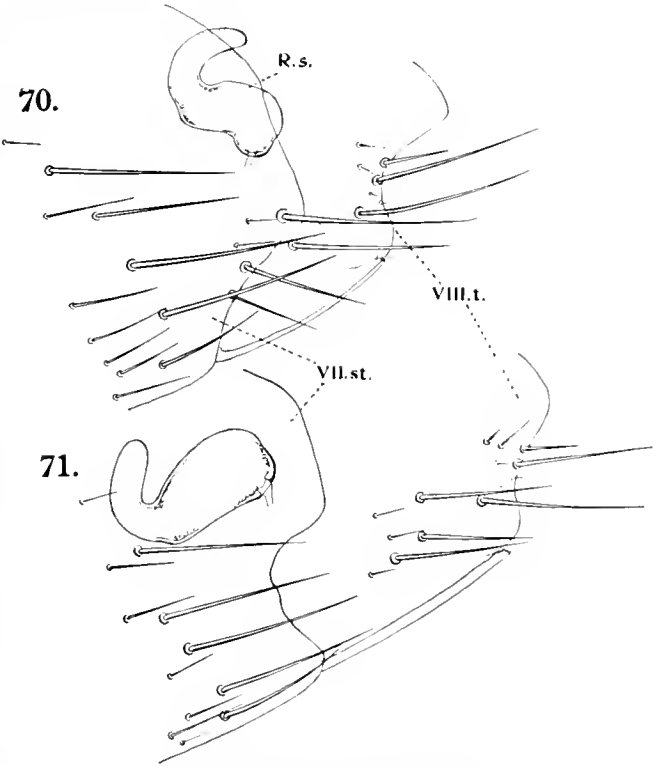


FIG. 70.—*Ctenophthalmus modicus*, ♀.
,, 71.— ,, *bacopus*, ♀.

the allied species mentioned the bristle is placed much farther down. Exopodite F nearly as in *Ct. ansorgei*, longer and its apical half more triangular than in both *Ct. ansorgei* and *Ct. cabirus*; along the upper margin 13 or 14 short pale spiniforms; posterior margin gently incurved from near apex and ventrally gradually becoming convex; below apex 5 or 6 slender bristles, of which the 2 upper ones are longest, being a little over half as long as their distance from process P^2 of clasper. IX.st. as in *Ct. ansorgei*, but slightly broader at apex.

♀. To these males probably belong the females which differ from the allied species as follows: Apex of VII.st. of abdomen (text-fig. 71) divided by a broad and shallow sinus into a broad upper lobe and a much smaller subventral one, the long bristles of the segment being much farther away from the bottom of the sinus than in *Ct. cabirus* and *Ct. ansorgei*. At the apical margin of VIII.t. two bristles, one long and one short as in the preceding new species, whereas in *Ct. cabirus* and *Ct. ansorgei* both bristles are longish, slender, and equal in size. Above stigma of VIII.t. no bristles. Body of spermatheca much longer than its tail.

Uganda: Lira, ix.1932, ♂, type, also viii.1932 (R. E. Barrett), 3 ♂♂, host not mentioned.——Kenya: Kisii and Nakuru, off *Otomys angoniensis* and *Lophuromys aquila*, 6 ♀♀.

There is the possibility that the females placed above under *Ct. modicus* really belong to *Ct. bacopus*, and that the true female of *Ct. modicus* has the VII.st. similar to that of *Ct. evidens* Jord. (NOV. ZOOL. xxxv, 1929, p. 167, text-fig. 3).

FLEAS COLLECTED BY DR. MAX BARTELS IN JAVA.

By DR. KARL JORDAN, F.R.S.

(With 7 text-figures.)

THE collection of fleas sent by Dr. Max Bartels consists of 30 specimens belonging to 10 species, of which no less than 3 are new, one of them representing a new genus allied to *Ctenophyllus*, which occurs in Eastern Siberia and North America. The collection, moreover, contains a male of *Paraceras javanicus*, of which species we had only the female, the single known male being at Washington. The small series of *Ceratophyllus calceatus* is likewise most welcome, as but 6 specimens of this species are known. The pair of *Stivalius klossi* obtained by Dr. Bartels renders it certain that *St. synetus* is the female of *St. klossi*, and the discovery of a *Palaeopsylla* extends the range of that genus very considerably. The collection, therefore, is of particular interest, and we thank Dr. Max Bartels sincerely for this contribution to our knowledge of the fauna of Java.

The specimens were collected at Tijboeni, Bandong, West Java, by Dr. Max Bartels with the exception of No. 1, which he received from Mr. E. Bartels.

1. **Ctenocephalides felis felis** Bouché 1835.

On *Paradoxurus hermaphrodytus javanicus*, 30.vi.1931, 1 ♀, an accidental occurrence.

2. **Ceratophyllus calceatus** Roths. 1905.

On *Rattus bukit temmincki*, 5.x.1932, 2 ♂♂; *Callosciurus nigrovittatus nigrovittatus*, 9.x.1932, 1 ♂, 1 ♀; *Rattus lepturus lepturus*, 12.x.1932, 1 ♀.—— The specimens from the Malay Peninsula, Sumatra, and Java do not seem to differ.

Cratynius gen. nov.

♀. Near *Ctenophyllus* Wagner 1927 (in Konowia, vi, p. 108), but differs from all genera more or less nearly related to *Ceratophyllus* Curtis 1832 in the mesosternite being divided into three sclerites instead of two in consequence of the strong development of the internal ridge representing the suture between the sternum (St) and episternum (Est); cf. text-fig. 72.

Frons and occiput with three rows of bristles, the 4 lower bristles of the anterior row of frons spiniform, sharply pointed; eye small, above it the internal curved genal rod present in all Ceratophyllids in which the upper eye-bristle is placed near the antennal groove. Bristles of antennal segment II short.

Pronotal comb with more than 20 spines, which are narrow and longer than the pronotum. Surface ridges of thoracic and abdominal tergites and legs somewhat coarse, with minute teeth here and there, apical margins of abdominal tergites I to VII minutely denticulate. Basal abdominal sternite with subbasal lateral bristles. Tibiae with 3 long dorsal bristles (subbasal, median, and apical), the other bristles short (text-fig. 73). Tail of spermatheca very long (text-fig. 74); duct of spermatheca likewise long, the blind duct on the contrary a mere remnant (D.o.).——Genotype: sp. nov. here described.

3. **Cratynius bartelsi** sp. nov. (text-figs. 72, 73, 74).

♀. Frontal tubercle external, sharp, ventrally almost horizontal, dorsally very little raised above the surface of the head. Three rows of bristles on frons: 6, 2, 2; the three rows on occiput contain (each side) 5, 5, 7 bristles. Eye longer than broad, sinuate, convex and dark below sinus. Segment I of maxillary palpus longer than II, proportions of the four segments: 11, 9, 6, 10·5. Proboscis reaching beyond two-thirds of forecoxa.

Pronotal comb with 23 spines, the lateral spines one-third longer than the pronotum; a row of 10 bristles. On mesonotum a posterior row of 10 (on the

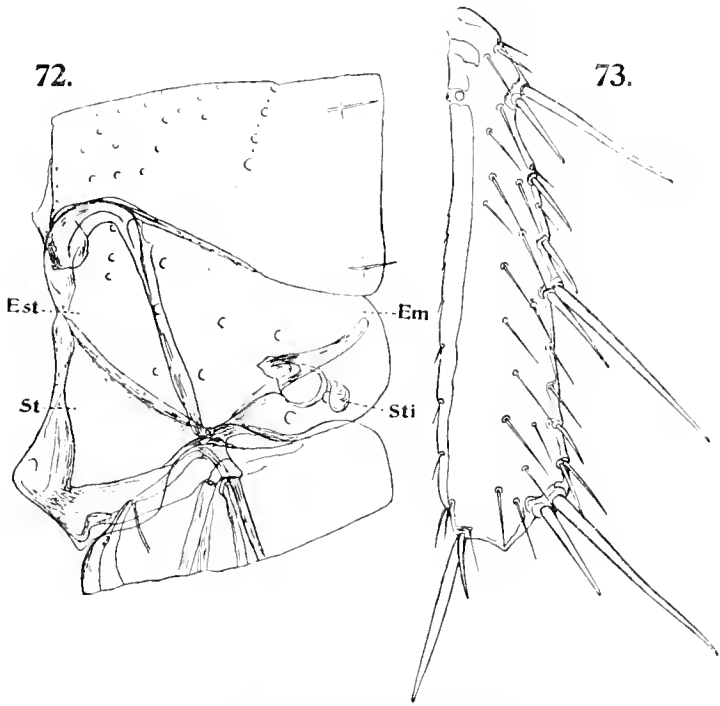


Fig. 72.—*Cratynius bartelsi*, mesothorax.
,, 73.— ,, ,, , hindtibia.

two sides together), between this row and basal margin (inclusive of small basal bristles) 40 odd; on mesopleurae 10 or 11 each side of body. On metanotum a posterior row of 8 and between the row and base 19, at apical margin 2 short spines; on metepimerum 6 or 7 bristles: 3, 3, 1, and 2, 3, 1.

Apical spines on abdominal tergites: 3, 2, 2; bristles: on III, 9, 12, IV 10, 12, V 5, 10, VI 4, 10, VII 0, 10; on sternites: III 0, 8, IV 3, 8, V 2, 8, VI 2, 8. Three antepygidial bristles, dorsal one less than half the length of the others.

Hindcoxa one-third longer than broad, without bristles on inner surface. Forefemur, on outside, with about 6 lateral and subdorsal bristles, and close to apex a vertical row of 4 or 5, this row also present on mid- and hindfemora, all femora on outside with a minute lateral bristle in anterior half, and on inside a single bristle, which is subapical and ventral; outer apical dorsal bristle of femora

short, especially stumpy on hindfemur. On dorsal margin of tibiae 3 pairs of strong bristles, the outer ones short ; on hindtibia between first and second pair two shorter and less strong dorsal bristles, and between second and apical pairs 2 smallish bristles, a stronger one and a subapical moderately strong pair ; 15 lateral bristles on hindtibia in two irregular rows (text-fig. 73). Proportions of tarsal segments : in midtarsus 23, 16, 12, 8, 16, hindtarsus 42, 25, 15, 9, 17. In all tarsi segment V with five pairs of lateral ventral bristles.

Modified Segments.—Sternite VII (text-fig. 74) with a deep, narrow sinus, around which the chitin is somewhat thickened ; the lobe above the sinus rounded, much narrower than the lower lobe ; the apical margin of the latter

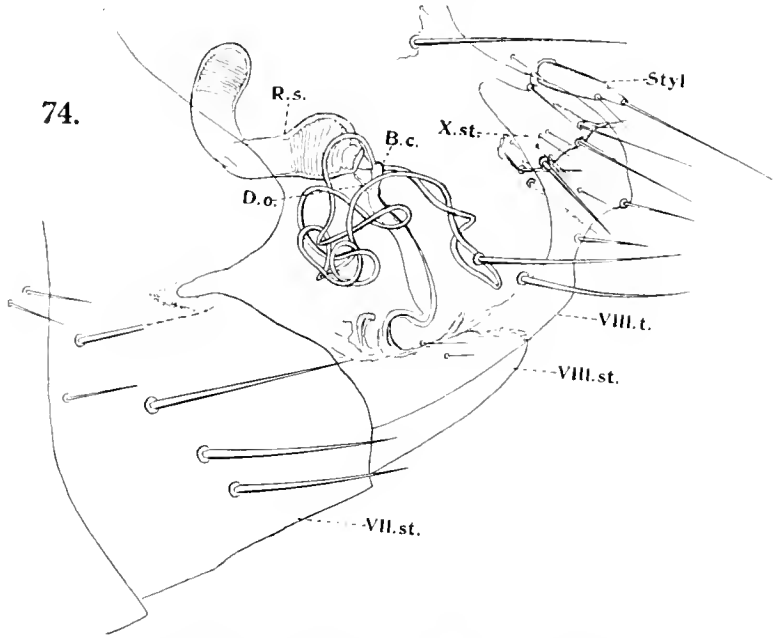


FIG. 74.—*Cratynius bartelsi*, posterior segments and genital organs.

slanting in upper half and irregularly and very moderately rounded in lower half ; on the two sides together 3, 10 bristles. On VIII.t. 4 minute subapical hairs above the stigma, which is long, extending nearly to the dorsal middle line ; below stigma 1 long bristle and a minute hair, and on the widened lower area 7 or 8 bristles, of which 2 are long and 2 or 3 small ; on inside 2. Stylet almost exactly three times as long as broad. Spermatheca with short round head which almost gradually merges into the long tail, head and apex of tail strongly striated, the whole organ nearly as long as hindtarsal segment II.

Length : 2·6 mm. ; hindfemur : 0·43 mm.

On *Hylomys suillus suillus*, 8.x.1932, 1 ♀.

4. **Paraceras javanicus** Ewing 1924 (text-fig. 75).

On *Paradoxurus hermaphrodytus javanicus*, 18.xii.1932, 1 ♂.——As compared with *P. pendleburyi*, from Borneo, described in Nov. Zool. xxxviii, p. 267, no. 2, text-figs. 23, 24 (1932), the process P of the clasper (text-fig. 75) is much

shorter and broader and the dorso-apical flap of F longer, and the row of bristles on the inner surface of F is placed much nearer the posterior margin, the dorsal margin of F is less convex and the posterior margin concave, not convex.

5. **Stivalius jacobsoni** J. & R. 1922.

On *Petaurista elegans*, 18.ix.1932, 1 ♀; *Rattus bartelsi*, 24.viii.1932, 1 ♀.——Only a few specimens are known, from Sumatra and Java.

6. **Stivalius cognatus** J. & R. 1922.

On *Rattus bukit temmincki*, 10.ix and 5.x.1932, 3 ♀♀; *Rattus lepturus lepturus*, 12.x.1932, 1 ♂, 2 ♀♀; *Rattus concolor ephippium*, 18.ix.1932, 1 ♂, 2 ♀♀; *Ratufa bicolor bicolor*, 1 ♀.——The commonest of the Javan *Stivalius*.

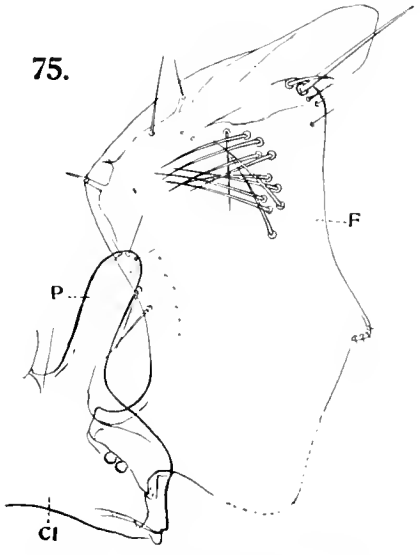


FIG. 75.—*Paraceras javanicus*, clasper and exopodite.

7. **Stivalius klossi** J. & R. 1922.

On *Rattus maxi*, 21.viii.1932, 1 ♂; *Ratufa bicolor bicolor*, 1 ♀.——We described a Sumatran ♀ as *St. synetus* in *Ectoparasites*, i, p. 229 (1922). The present ♀ differs in the lower angle of the upper lobe of VII.st. being produced as a short sharp projection. It is, however, very unlikely that this distinction will hold good when more ♀♀ are at hand. I no longer hesitate to place *St. synetus* as a synonym of *St. klossi*.

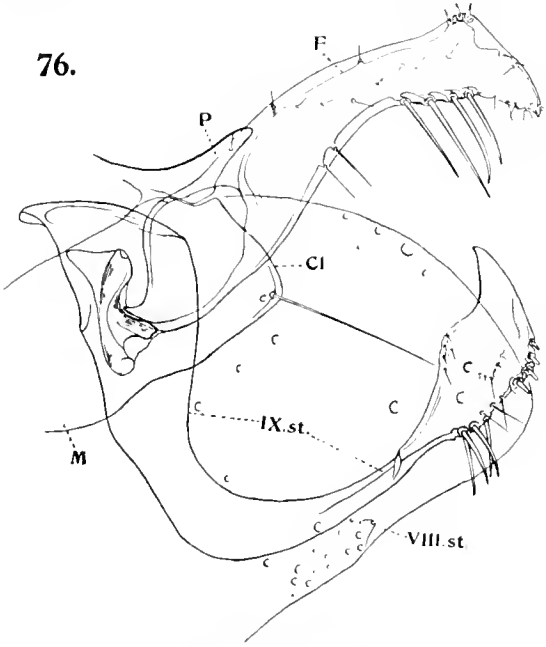


FIG. 76.—*Stivalius javanus*, ♂-genitalia.

8. **Stivalius javanus** sp. nov. (text-figs. 76, 77).

♂♀. Nearest to *St. rhaebus* Jordan 1926, from Borneo, and probably representing that species on Java. Both these insects belong to Group B (cf. *Ectoparasites*, i, p. 256 (1922)), in which there are only two heavy bristles in the dorsal notches of the tibiae. In the ♂ of the new species the exopodite F is narrower

and less curved than in *St. rhaebus*, the apex of the vertical arm of IX.st. is much less dilated, the semicircular portion of the segment longer, and VIII.st. bears fewer lateral bristles; in the ♀ the spermatheca is strongly humped.

♂. On each side of VIII.st. 14 or 15 lateral and dorso-marginal bristles, and on the ventral median projection about 12, of which some are very small and 2 stout. Width of exopodite F (text-fig. 76) measured at margin of elasper above long thin ventral bristle of elasper a very little more than one-fifth the length of the exopodite measured from extreme base (4 : 19); proximally to apex a ventral row of 4 long bristles, the distance of the most distal bristle from the apex of F the same as from the most dorsal point of the dome which bears 3 short pale spiniforms. Apical dilated portion of vertical arm of IX.st. as broad as

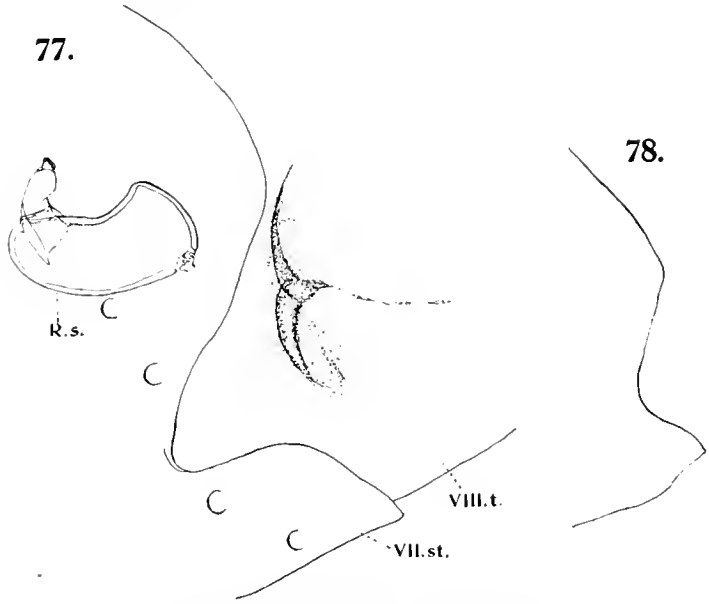


FIG. 77.—*Stivalius javanus*, ♀, VII.st. and VIII.t.
" 78.—*Palaeopsylla laxata*, ♀, VII.st.

midtarsal segment II is long; the apical portion of the ventral arm with similar spiniforms as in *St. rhaebus*, the apex of the segment acuminate, but very little recurved.

♀. The two sickle-shaped incrassations of VIII.t. (text-fig. 77) larger than in *St. rhaebus*, and centrally more intimately fused together. The hump of the spermatheca very prominent in all 3 specimens, though individually variable.

Length: ♂ 3·0 mm., ♀ 5·0–5·6 mm.; hindfemur: ♂ 0·48 mm., ♀ 0·67–0·75 mm.

On *Tupaia javanica occidentalis*, 18.ix.1932, 1 ♂, type; *Rattus bukit temminckii*, 5. and 30.x.1932, 2 ♀♀; *Callosciurus nigrovittatus nigrovittatus*, 11.viii.1932, 1 ♀.

9. **Neopsylla kopsteini** Jordan 1931.

On *Rattus lepturus lepturus*, 12.x.1932, 1 ♂, 1 ♀.—Discovered on this rat by Dr. F. Kopstein, and described in NOV. ZOOL. xxxvii, p. 145, no. 3, text-figs. 3, 4, 5 (1931).

10. **Palaeopsylla laxata** sp. nov. (text-fig. 78).

♀. Very close to *P. incurva* Jord. 1932 (1 ♀, N.E. Burma, on "*Sorex*"), with the same peculiar pronotal comb. Differs only in the tail-end. The upper lobe of VII.st. (text-fig. 78) almost effaced, projecting much less than the ventral lobe, and the sinus very large, but no deeper than in *P. incurva*; in one specimen 25 bristles, in the other 35. On VIII.t. a subventral vertical row of 3 bristles, the lowest very small, in *P. incurva* all 3 bristles moderately long and strong; at apex of VIII.st. 4 or 5 bristles instead of 3.

On *Crocidura brevicauda*, 22.viii.1932 and 10.i.1933, 2 ♀♀.

TWO NEW SOUTH AMERICAN BIRD-FLEAS.

By DR. KARL JORDAN, F.R.S.

(With 3 text-figures.)

THE two species here described were collected by Mr. W. P. Reynolds on the Estancia Viamonte, Tierra del Fuego, and communicated to me by Dr. F. W. Edwards (Brit. Mus., Nat. Hist.). They belong to that group of *Ceratophylli* which are more or less closely related to the European *Ceratophyllus gallinulae* Dale 1878, and constitute Baker's genus *Dasypsyllus*, which I here adopt, following Dr. Julius Wagner.

1. **Dasypsyllus comatus** sp. nov. (text-figs. 79, 80).

♂♀. A deeply coloured species allied to *D. araucanus* J. & R. 1920 from Chile.

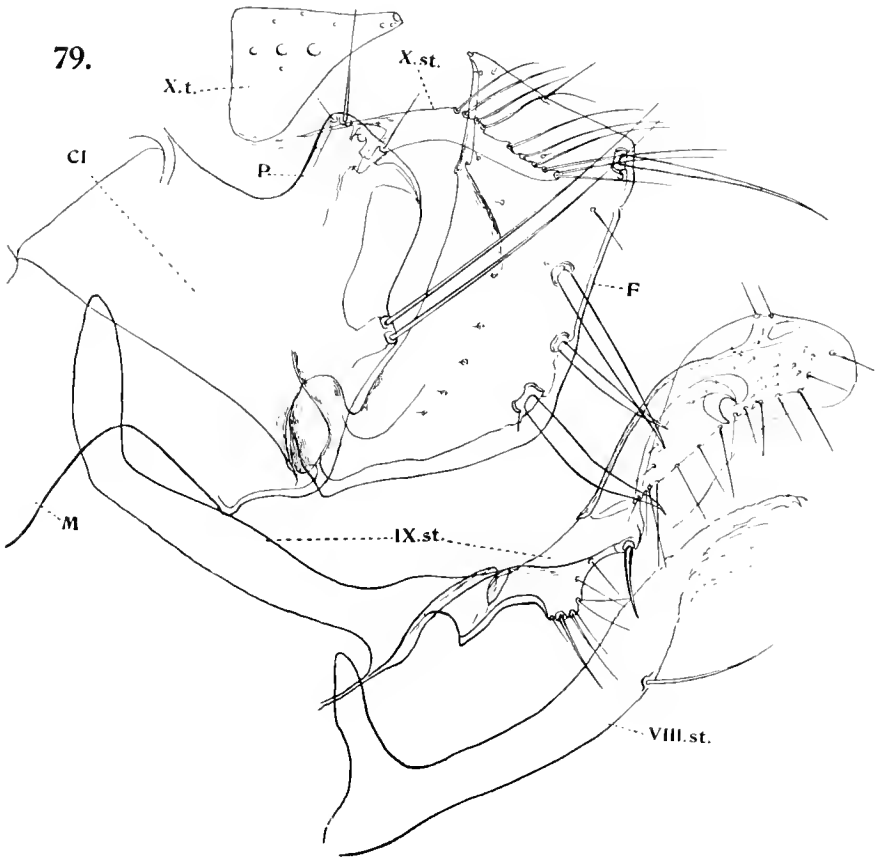
Frons with two and occiput with three rows of bristles. Eye large. Proboscis reaching to two-thirds (♂) or three-fourths (♀) of forecoxa. On pronotum a posterior row of 14–16 bristles and another row of 6 or 7 smaller ones; in comb 36 (♂) or 33 (♀) spines. Mesonotum densely hairy from postmedian row of long bristles to base; on mesopleurae about 20 bristles, of which 13 or 14 are small. On metanotum numerous small bristles from the row of long ones to basal third, the setiferous area gradually narrowing down the side; on metepisternum 4 to 6 bristles; on metepimerum 9 to 12.

Basal margin of abdominal tergites somewhat incurved subdorsally in ♂, on I and II three rows of bristles, on III to VII two, and on all segments additional dorsal bristles; number of apical spines: in ♂ 4, 6, 4, 4, in ♀ 4, 8, 6, 4, 1; number of bristles: in ♂ on II about 45, 20, III 30, 20, VI 17, 19, VII 16, 19, in ♀ on II about 50, 20, III 34, 20, VI 22, 19, VII 17, 16. Bristles of sternites: in ♂ on III 8, IV 9, V 9, VI 10, VII 8, in ♀ on III 4, 12, IV 3, 12, V 3, 12, VI 2, 11. One long antepygidial bristle and two minute ones in ♂; in ♀ upper and lower longish, but less than half the middle one in length.

On apical half of inner surface of hindcoxa 16 to 20 odd small bristles. On outer surface of hindfemur in ♂ 18, in ♀ 23 lateral and subventral bristles, on inner side a row of 8 and 10 respectively. Hindtibia with 7 dorsal notches and an additional short stout dorsal bristle between pairs V and VI; on outer side 15 (♂) or 18 (♀) dorso-lateral bristles; longest apical bristle of hindtarsal I reaching to apex of II in ♂, shorter in ♀; on sole of V minute hairs to near base.

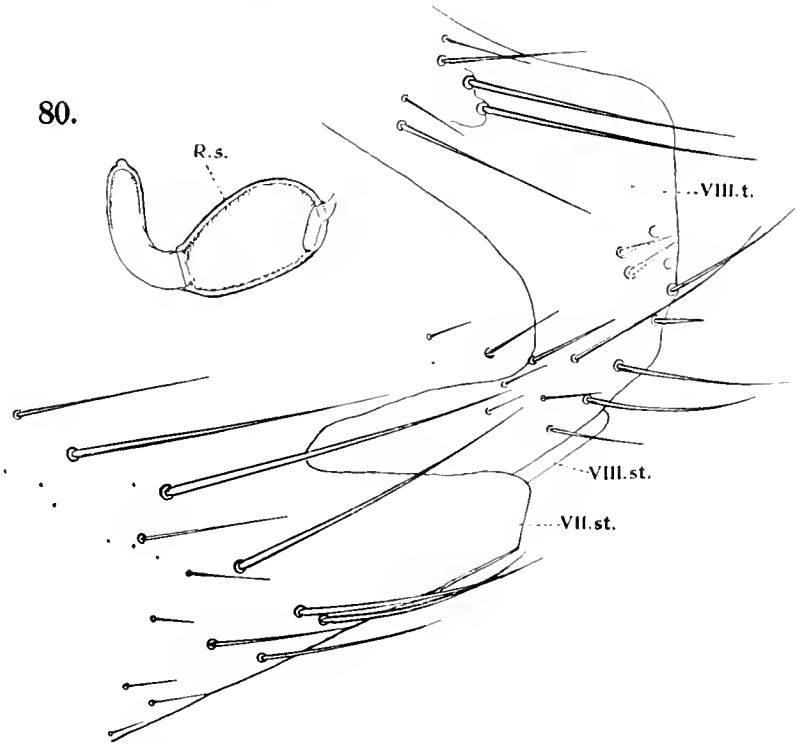
Modified Segments.—♂. VIII.t. with about 12 marginal and lateral bristles in upper half and a patch of 18 bristles on lower half at and near ventral margin; VIII.st. narrow (text-fig. 79), base produced upwards into an irregularly conical lobe which is about thrice as long as VIII.st. is broad on the posterior side of this projection, distally VIII.st. membranous, evidently divided up into a number of filaments, this portion concealed in the only ♂ we have by the numerous ventral bristles of VIII.t., a single ventral bristle beyond middle. Manubrium

of clasper twice as long as broad, ventrally very strongly rounded, apex curved upwards. Process P of clasper very broad, broader than dorsally long, apex slanting on posterior side, posterior angle very broadly rounded. Exopodite F large, nearly thrice as long as broad, basal third gradually widening, from one-third upwards the anterior and posterior margins about parallel, apical margin slanting upward-forward, the anterior apical angle acute, the posterior angle obtuse, notch of anterior margin at upper third; at upper posterior angle a stout spiniform, gradually drawn out into a long point, this spiniform somewhat



longer than oblique apical margin, above middle another spiniform, about the same in length but much stouter from base to tip, below it, but nearer the margin, a third, smaller, and at lower angle of posterior margin a fourth, the stoutest of all, somewhat elbowed. Apical portion of vertical arm of IX.st. irregularly elongate-elliptical, a little narrower than the middle of the vertical arm; ventral arm with a stout spiniform ventral bristle before middle, more frontad a ventral, subrotundate lobe bearing several bristles, of which one is fairly strong; transparent apical half of sternite dorsally strongly convex, with the usual row of thin bristles. Anal tergite (X.t.) triangular, with 3 lateral bristles, of which second and third are very strong; anal sternite (X.st.) divided into two linear

lobes, one each side of body, somewhat elbowed and bearing in apical half a row of 10 long, slender, marginal bristles.——♀. On VII.st. 27 bristles (14, 13); apical margin deeply incurved, the sinus narrow, the lobe above it obtuse, rounded, the one below it obliquely truncate, its upper (rounded) angle projecting more than its ventral angle. Above stigma of VIII.t. on each side about 12 small bristles, below stigma 5 or 6, of which 2 or 3 are long, on ventral area 14, and on inner side 2. Head of spermatheca (R.s.) ovate, more than half as long



again as broad, tail measured in a straight line from lowest point a little shorter than head.

Length: ♂ 3·2 mm., ♀ 3·4 mm.; hindfemur: ♂ 0·53 mm., ♀ 0·60 mm.

On *Belanopterus molina*, 15.x.1930, 1 ♂, type; *Siptornis anthoides*, 7.ix.1930, 1 ♀.

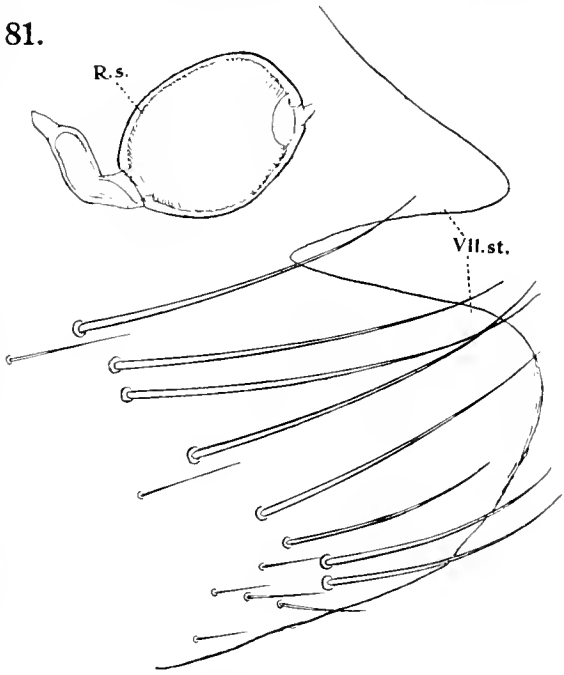
2. **Dasypsyllus aemulus** sp. nov. (text-fig. 81).

♀. Likewise near *D. araucanus*, easily distinguished by the shape of VII.st. and the almost globular body and short tail of the spermatheca.

On frons two rows of bristles (5, 3), on occiput three rows (3, 6, 8). Proboscis reaching a little beyond two-thirds of forecoxa. Eye large, and bristles of antennal segment II very long, as in *D. comatus*. Pronotum with one row of bristles (14) and a comb of 42 spines. On mesonotum a row of 12 long bristles and two rows of very small ones, there being numerous small additional bristles dorsally and at base, on mesopleurae 18 bristles on one side of body, 23 on the

other, of which 5 or 6 are long. Metanotum with fewer small bristles than mesonotum; on metepimerum 11 or 12.

Abdominal tergites I to IV with apical spines, 4, 7, 4, 4; three rows of bristles on I and II, and two rows on III to VII, with additional dorsal bristles, the number of bristles being (on the two sides together) on III 31, 16, IV 29, 15, VII 16, 11; on sternites III 6, IV 6, V 2, 10, VI 3, 9. Three antepygidial bristles, middle one very much thicker than the others and nearly thrice as long. Legs nearly as in *D. comatus*; hindfemur on outside with one row of bristles, 7 on one femur and 5 on the other, besides a subapical ventral bristle; on inner surface of hindfemur 3 lateral bristles in anterior half; segment II of mid- and hindtarsus longer than in *D. comatus*, the proportions being in *D. aemulus*: midtarsus 22, 26, 15, 8, 19, hindtarsus 45, 36, 21, 11, 21; in *D. comatus* ♀: midtarsus 25, 24, 16, 8, 20, hindtarsus 47, 33, 22, 12, 22.



81.

Modified Segments.—VII.st. (text-fig. 81) with a deep sinus as in the previous species, but the upper lobe narrow, triangular, and the lower lobe very broad and rounded; on the two sides together 11, 16 bristles. Above stigma of VIII.t. about half a dozen small bristles each side, below stigma 2 long and 2 minute ones, on widened portion of segment 9 or 10 bristles on outside, 3 apical and 3 lateral on inside. Stylet not quite thrice as long as broad (31 : 12). Body of spermatheca (R.s.) subglobular, one-fourth longer than broad; tail short, one-fourth the width of the head of spermatheca, with a rather long appendix.

Length: 3·6 mm., hindfemur 0·6 mm.

On *Belanopterus molina*, 15.x.1931, 1 ♀.

Another ♀, off *Siptornis anthoides*, 7.ix.1931, is smaller than the type of *D. aemulus*, and has fewer bristles and a somewhat longer spermatheca, but agrees otherwise so closely with *D. aemulus* that it probably belongs to the same species.

NEW ORIENTAL *ANTHRIBIDAE* (COLEOPTERA).

By DR. KARL JORDAN, F.R.S.

1. **Mecotropis arduus** sp. nov.

♂. Close to *M. annulipes* Jord. 1911, from Borneo; dark dots at suture more sharply defined, otherwise the colouring of the body the same. Proboscis longer. Segment II of antenna more gradually conical, being less strongly narrowed in basal two-thirds than is the case in *M. annulipes*. Groove in front of forecoxae not continued as in *M. annulipes* across middle by a shallow curved depression. A long subapical spot on tibiae, this spot on mid- and hindtibiae about as long as the black apex, on foretibia shorter, tarsi black, a subapical spot on segment I of all tarsi, occupying on foretarsus about one-fourth of the length of the segment, on mid- and hindtarsi two-fifths, colour, of spot yellowish, segment IV the same colour except its apex and the claw.

Length: 18 mm.

Malay Peninsula: Selangor, Bukit Kutu, 3,500 ft., 14.ix.1929 (H. M. Pendlebury), 1 ♂.

2. **Mecotropis ordinatus** sp. nov.

♀. Like *M. marmoreus* Jord. 1895, from Borneo and the Malay Peninsula, but with definite white spots. Antennal segments IX to XI a little broader. Pubescence buffish grey, rather sparse, not concealing the black colour of the derm. A broad median stripe on head and rostrum more densely pubescent, an elliptical or ovate darker median spot posteriorly between the eyes, in one specimen continued backwards. On pronotum at each side close to middle line two white spots, one before middle, the other at carina, sidewards from them and a little more forward a dot, the second spot barely traceable in two of the three specimens. Scutellum white. Adjoining it a small white sutural spot; each elytrum with the following white spots: a dorsal row of 5, at nearly equal distances from one another, the first on basal incrassate margin, the last two on apical declivous area smaller than the second and third, a sixth spot above shoulder, at margin 5 or 6, the first below shoulder long, the second small, the fifth and sixth submarginal, small.

Underside spotted with white. Tarsal segment I with a minute white spot, II with basal third or two-fifths white.

Length: 11 to 12 mm.

Malay Peninsula: Selangor, Bukit Kutu, 3,500 ft., 14.ix.1929 (H. M. Pendlebury), 3 ♀♀.

3. **Physopterus pulcher** sp. nov.

♂. In colouring recalling *Ph. opulentus* Jord. 1913, but elytra not humped in front of apical declivity. Black-brown, with tawny markings, the tawny pubescence interspersed with white grass-blade hairs, which are especially conspicuous on the black-brown interspaces.

Proboscis tawny above, as long as subapically wide, a median sulcus extend-

ing on to frons, but separated from apical margin by a median carina ; from upper margin of antennal groove backwards two diverging swellings ; ill-defined, not reaching eye ; below eye an oblique groove ; underside rugate-punctate. Antennal groove sulciform, ending with a rounded hole. Frons and occiput tawny, the latter with a black dorsal elongate spot each side of middle, the spots parallel. Antenna reaching to end of elytra, black, with white pubescence, which is concentrated at apices of segments, VIII entirely and IX at base white, X and XI without white pubescence.

On pronotum, from carina to apex, five pairs of tawny spots, second pair partly confluent with anterior spot of middle pair, the spots occupying about as much room as the black-brown interspaces ; behind carina a spot near lateral angle and three spots in middle area, tawny. Scutellum white.

Elytra somewhat flattened dorsally to behind middle, evenly convex in posterior half, suture and alternate interspaces spotted with tawny, most of the spots longer than broad, about six or seven in an interspace. Pygidium evenly rounded, one-sixth broader than long, with brown basal median spot, and another each side halfway to apex.

Underside with tawny, confluent, somewhat diffuse spots at side, middle sparsely pubescent grey ; metasternum with a minute tuft each side of middle line near apex ; abdominal segment I with a round median tubercle some distance from apex. Pubescence on femora, except apices, and on tarsi grey-white, on apices of femora and on tibiae tawny.

Length : 9 mm.

Malay Peninsula : Larut Hills, Perak, 3,700 to 4,000 ft., 11.xi.1932 (H. M. Pendlebury), 1 ♂.

4. **Physopterus biplagiatus ovatus** subsp. nov.

♀. Black patch of elytrum reaching from lateral margin to line III of punctures, transversely longer than longitudinally (ratio 4 : 3), its longitudinal diameter shorter than in *Ph. bipl. biplagiatus* Jord. 1897.

Java, 1 ♀.

Atoporhis gen. nov.

♂♀. Near *Altipectus* Jord. 1894, but rostrum with several carinae and segment VIII of antenna little longer than broad.

Rostrum spathulate, porrect, with large apical triangular median flattened area reaching halfway to base, a high median carina from this triangle to base and on to frons, but not extending to occiput, this carina convex in lateral aspect, it is flanked by a deep sulcus, upon which follows a heavy carina running from eye straight to depressed triangle and then turning obliquely to apical lateral angle, the carina flanking the triangle and becoming flat at apex ; at the side of it from eye to above antennal groove a broad sulcus bounded laterally by a subcariform swelling ; below this a narrow curved groove ; on underside, buccal sinus long and narrow, continued by a short shallow sulcus which ends with a rounded groove situated below the inner end of the antennal groove, but a little nearer to head. Antennal groove larger than in *Altipectus*. Antenna similar, but VIII quite short.——Genotype : *A. plastus* sp. nov.

5. **Atoporhis plastus** sp. nov.

♂. Brown-black, the derm of upperside and flanks of underside for the greater part rufous; pubescence dense, greyish cinnamomeous on head, pronotum, elytra, and sides of pygidium, whitish grey on proboscis, underside, and legs. Rostrum one-twelfth longer than broad. Eye elliptical. Frons as broad as segment I of antenna (♂). Antenna brownish black, reaching a little beyond base of pronotum, flattened (in ♂) from segment III, III as long as I + II, length of III 29, IV 20, V 18, VI 15, VII 16, VIII 8, IX 31, X 15, XI 25; club linear, width 9.

Pronotum conical, less than one-third broader than long (9 : 7), with two straight brown-black stripes (extending to eyes), somewhat narrower than their interspace, and nearer to middle than to sides; carina as in *Altipectus* well separated from base, concave in median third, then somewhat convex, and finally flexed forward in a wide curve to middle of side, no angle being formed. Longitudinal and transverse carinulae distinct, the former directed towards the lateral carina, but not reaching it. Scutellum triangular, greyish.

Elytra widest at shoulders, broader than pronotum, gradually narrowed, dorsally flattened, punctate-striate, first two interspaces flat, the others slightly convex, a black-brown spot on subbasal swelling, elliptical, with a dot in front of it and another obliquely behind it in fifth stripe, a second spot before middle, narrower, longer than broad, occupying interspace IV and half III and V, a third, smaller, spot outside it but joined to it in interspace VI, a large spot, the largest of all, in apical third from interspace III to VII, triangular, rounded laterally (following seventh stripe of punctures), dentate anteriorly, its distance from apex of elytrum greater than from suture, at lateral margin two small spots between middle and shoulder. Pygidium flat, one-tenth broader than long, rounded at apex, almost subtruncate.

Abdominal segment I (♂) with a cordiform median impression covered with a short brown-black erect pile. Apex of tibiae and of tarsal segment I and segments II to IV brown-black, I of foretarsus one-ninth longer than II to IV together.

Length 10·7 mm., width 5 mm.

North Borneo: Kudat, 14.ix.1927 (C. Boden Kloss & H. M. Pendlebury), 1 ♂.

6. **Atoporhis asemus** sp. nov.

♀. Like the preceding, but pronotum and elytra with a pale drab pubescence which does not conceal the rufescent brown colour of the derm, and forms three stripes on the pronotum and a number of spots on the elytra; proboscis, frons and underside whitish grey, this colour extending on to the sides of the pronotum to the lateral stripe. Shaft of antenna not compressed (♀), segment III shorter than in the preceding species and IX longer (proportions 25 : 35). The two brown vittae of pronotum broader than the pale drab vittae, the middle vitta broader than the lateral ones. Elytra a little more deeply striate than in *A. plastus*, the interstices slightly more convex; the pale drab spots diffuse and irregular (probably variable): a large spot in depression behind subbasal swelling, a narrow transverse postmedian band composed of dots, a similar band on apical declivity, two limbal dots between middle and shoulder, and some small spots from scutellum to near shoulder. Pygidium rufescent brown, flat, some-

what concave, nearly as long as basally broad, truncate, with the angles strongly rounded, apex about half as broad as base, sides almost straight, except at base. Foretarsal segment I nearly one-fifth longer than II to IV together, i.e. longer than in the previous species.

Borneo: Kuching, Sarawak, ix.1903, 1 ♀ (from the Sarawak Museum).

7. **Acorynus alboguttatus nigrans** subsp. nov.

♂. The three stripes of pronotum pale cinnamon from carina forward, much broader than the black interspaces, behind carina they are whitish grey and narrower than the interspaces. Elytra pale cinnamon, black spots smaller than in the other known subspecies of *A. alboguttatus*, white spots absent. On underside the white spots as large and as sharply defined as in *A. a. alboguttatus* Jord. 1894.

North Borneo: Bettotan, near Sandakan, vii.1927 (C. B. Kloss & H. M. Pendlebury), 1 ♂.

8. **Acorynus griseoniger** sp. nov.

♀. Similar to *A. melampus* Jord. 1903, but the median carina of the rostrum much lower and carina III much more sharply defined, the grey pubescence diffuse, the elytra much more coarsely punctate-striate, etc.

Black, upperside with sparse grey pubescence. Rostrum coarsely punctate, practically as long as broad (ratio 18 : 19), median carina broadest at base, here flattened, farther forward lower, but more sharply defined, continued to near apical margin by a flattened swelling which is rendered irregular by the intrusion of large punctures, carina II somewhat higher and better defined, a little shorter than I, carina III lower, but well defined and very distinctly separated from edge of antennal groove. Frons as broad as segment II of antenna is long, with thin raised median line. Segments IX to XI of antenna not quite so long as III to VI together, X not quite twice as long as broad (7 : 4).

Pronotum coarsely punctate, somewhat uneven, in front of scutellum a rather large, conspicuous, square, yellowish grey spot in front of which is a small triangle of the same colour, behind apical margin an elongate grey median spot, at sides a subdorsal grey vitta indicated by a subapical rounded spot, before carina by a diffuse spot continued laterad along carina, and behind carina by another diffuse spot; lateral carina extending to meral suture.

Scutellum grey. Elytra coarsely punctate-striate, the interspaces much narrowed by the large seriate punctures, especially at side, in the stripes a grey inconspicuous pubescence; a large median patch extending from suture obliquely backwards to outer margin, widest dorsally, and the greater portion of the declivous apical area almost devoid of grey lines and dots, therefore appearing black. Pygidium nearly one-third broader than long, rounded.

Underside grey, on sides of sterna with diffuse spaces bare of grey pubescence. Femora grey, black in middle and at apex, tibiae and tarsi brownish black, an antemedian ring on tibiae and an apical spot on tarsal segment I grey; this segment shorter than II to IV together.

Length 5·7 mm., width 2·7 mm.

North Borneo: Bettotan, near Sandakan, viii.1927 (C. B. Kloss & H. M. Pendlebury), 1 ♀.

9. **Acorynus gracilentus** sp. nov.

♂. In colouring recalling *A. cludus* Jord. 1895, but pronotum strongly punctate and transversely rugate.

Black-brown. Rostrum one-third broader than long, very coarsely punctate-rugate, with a large median depression ; this groove somewhat rounded on apical side ; three dorsal carinae, I broadest, flattened, widened at one-third of rostrum and here sending out a short spur each side, the carina ending in the depression at two-thirds, carina II slightly curved, shorter than I, distally broken up by large punctures, III somewhat longer, separate from edge of antennal groove. Frons as broad as antennal segment II, with a thin raised median line as continuation of carina I of rostrum. Occiput coarsely punctate. Antenna rufescent at base, segments IX to XI as long as III to VI, taken together.

Pronotum coarsely punctate, transversely rugate ; a complete buff median stripe and a vestigial grey dorso-lateral one more distinct behind carina at angle ; carina flexed forward-downward at sides to meral suture.

Scutellum grey. Elytra coarsely punctate-striate ; a sutural patch from base to near antemedian depression, a narrow elongate sutural spot behind it, and a short line each in stripes II and III luteous ; a postmedian oblong spot from middle of interspace II to VI, a little wider than long, two small spots at beginning of apical declivity, three short lines in front of them, a sublateral spot behind shoulder, a lateral and a sublateral dot before middle, a lateral dot in posterior half, and a small diffuse patch each at the sutural and outer angles of apex, more or less buffish grey. Pygidium one-tenth broader than long, slightly convex, gradually and rather strongly rounded-narrowed, pubescence grey, thin, not concealing the derm.

Underside silky grey ; apical margin of intercoxal process of mesosternite feebly rounded. Legs rufous, tarsi and apex of tibiae darker, especially in hindleg, no definite grey ring on tibiae, grey pubescence on upperside of tarsal segment I scattered ; apex of fore- and midtibiae simple.

Length 5 mm., width 2·2 mm.

North Borneo : Bettotan, near Sandakan, viii.1927 (C. B. Kloss & H. M. Pendlebury), 1 ♂.

10. **Acorynus trilineatus** sp. nov.

♂. Near *A. mundellus* Jord. 1926 ; with three narrow, sharply defined, yellowish buff lines from apex of pronotum to base of elytra.

Black, pubescence of upperside blackish brown. Rostrum broader than long, coarsely rugate-punctate, pubescence greyish white as on frons, five carinae, which do not reach apex, I interrupted before middle, stopping before reaching apex, but continued to apical margin by a flattened swelling. Frons somewhat narrower than segment II of antenna, without median carina, but with a median stripe which runs from pronotum across occiput and is whitish in front and yellowish behind. Occiput coarsely punctate, punctures more or less confluent transversely. Segments IX to XI of antenna together longer than III to VI, IX shorter than XI, which is curved.

Pronotum one-fourth broader than long, conical from carina forward, coarsely punctate, transversely rugate ; the three vittae about as broad as segment IX of antenna, lateral vitta anteriorly whitish, somewhat oblique, crossing over to shoulder of elytrum ; lateral carina reaching to meral suture.

Scutellum yellowish buff. Elytra more than half as long again as broad (8 : 5), dorsally somewhat flattened, subbasal swelling moderate, interspaces of stripes but slightly convex, subbasal vitta confined to interspace I, and lateral vitta to interspace VII. Pygidium as long as broad, convex, slightly depressed medianly, gradually rounded-narrowed, middle of apical margin nearly straight.

Underside pubescent ashy grey. Anal sternite without tubercle. Legs grey like underside of body, tarsal segments II to IV black-brown, apex of foretibia somewhat incrassate and like that of midtibia without tooth.

Length 7 mm., width 3·3 mm.

North Borneo: Bettotan, near Sandakan, viii.1927 (C. B. Kloss & H. M. Pendlebury), 1 ♂.

11. **Acorynus bifurcus** sp. nov.

♂. Similar to *A. ypsilon* Jord. 1926, but the lateral stripe of the pronotum barely indicated, the spots of the elytra reduced, the club of the antenna shorter, and the pygidium longer.

Rostrum as in *A. ypsilon*. Eyes nearly contiguous. Occiput coarsely punctate. Antenna rufescent, segments IX to XI as long as III to V together (in *A. ypsilon*–♂ IX to XI as long as III to VI).

Pronotum coarsely punctate, transversely rugate-plicate, a grey median stripe, tapering at apex, lateral stripe represented by small remnants of grey pubescence before carina and near basal margin; lateral carina as short as in *A. ypsilon* and *A. cylindricus* Jord. 1894.

Scutellum the same colour as the median stripe of pronotum. Elytra coarsely punctate-striate; from before middle of punctate stripe V, a creamy band runs to posterior third of suture and thence a little along suture posticad, in basal half numerous short, grey, inconspicuous lines in the stripes of punctures, an inconspicuous grey sutural patch behind scutellum, a few short spots in apical half and a rather more prominent small lateral spot before and again behind middle, the conspicuous posthumeral spot of *A. ypsilon* absent from the new species. Pygidium somewhat convex, as long as broad, gradually rounded-narrowed, apical margin rather more strongly rounded at sides than in middle, a narrow lateral stripe grey.

Femora, part of underside of tibiae and a subbasal spot on tibiae grey, rest of legs blackish brown, rufescent at the joints; apex of foretibia broadened, beneath somewhat concave longitudinally, with a blunt tooth at each side of depression; midtibia with sharp apical tooth.

Length 5·7 mm., width 2·7 mm.

North Borneo: Bettotan, near Sandakan, viii.1927 (C. B. Kloss & H. M. Pendlebury), 1 ♂.

12. **Acorynus aratus** sp. nov.

♀. As in *A. cylindricus* Jord. 1894, which we have from Perak and Borneo, the lateral carina of pronotum very short; the new species is distinguished by segment X of antenna being much shorter and by the markings of the elytra being different.

Black, pubescence of underside and markings of upperside luteous. Proboscis as long as apically broad, with five carina as in the allied species mentioned, I thin and low from base, widened at apical third, but not extended to apex,

II high, abbreviated distally, its apex connected by a slight, obliquely transverse, swelling with margin of antennal groove, III joining that margin, which is continued to apex of rostrum as a carina. Frons very little broader than antennal segment II, without indication of a median carinula except posteriorly. Eye narrowly margined with clay-colour. Shaft of antenna rufescent brown, III a little longer than IV, IX one-fourth longer than XI and nearly one-half longer than III, X twice as long as broad, longer than in *A. cylindricus*.

Pronotum coarsely punctate, transversely rugate; markings nearly as in *A. cylindricus*: median stripe consisting of three elongate spots, sublateral stripe strongly constricted at one-third from carina, the anteearinal portion forming a U with the short stripe: carina as in *A. cylindricus*.

Scutellum brown. Elytra anteriorly broader than in *A. cylindricus*, strongly punctate-striate, with small separate luteous spots, namely, two transverse parallel ones in front of subbasal swelling, the anterior one at basal margin, on suture a slightly transverse dot in antemedian depression, and a slightly elongate one in middle, neither dot extending beyond stripe I, and a larger spot on apical area, posteriorly on subbasal swelling a dot in interspace I and behind the swelling a minute dot in III, another in III at beginning of apical declivity, in interspace V and partly in VI five dots, one of them close to base, minute, second above shoulder somewhat larger, third on a level with antemedian depression small, fourth before middle, round, nearly the same size as the median sutural spot, fifth at beginning of apical declivity, in VII a dot before this declivity, in VIII an antemedian spot similar to the submedian spot of V, but more forward, at lateral margin a patch below shoulder, extending up to punctate stripe VII and drawn out backwards as a short marginal line which does not quite reach an antemedian limbal line, behind middle of margin a spot extending up to punctate stripe VII, and a triangular spot at lateral apical angle. Pygidium evenly rounded, broader than long, with a very distinct swelling each side of middle and a luteous lateral spot.

Basal half of tibiae except extreme base, and apical five-sixths of tarsal segment I luteous grey.

Length 7·3 mm., width 3·5 mm.

North Borneo: Bettotan, near Sandakan, viii.1927 (C. B. Kloss & H. M. Pendlebury), 1 ♀.

13. **Acorynus saphis** sp. nov.

♂. In colour and size like *A. rusticus* Pasc. 1860, but very different in the frons, anal segment, and midtibia.

Somewhat narrower than ♂♂ of *A. rusticus* of the same length. Frons only as broad as the base of antennal segment II. Medium stripe of pronotum widely interrupted, lateral stripe and the half-stripe broader, intermediate short stripe far distant from carina. Pygidium as long as subapically broad, one-fifth broader at base than subapically; apex truncate, with the angles rounded.

Anal sternite very broad, truncate, shallowly and broadly bisinuate, the lateral angles rounded and more projecting than the median portion of the apical margin, in middle of segment a hairy elliptical swelling accentuated by a small groove each side. Intercoxal process of mesosternum narrower than in *A. rusticus*. Foretibia with a tooth each side of apical ventral sinus; apex of midtibia with prominent tooth.

Length 12 mm., width 5·2 mm.

North Borneo: Bettotan, near Sandakan, 30.vii.1927 (C. B. Kloss & H. M. Pendlebury), 1 ♂.

14. **Acorynus teuches** sp. nov.

♂. In colour close to *A. fenestratus* Jord. 1897. Above drab grey, paler beneath, with the following black markings on upperside of pronotum between middle and lateral carina: an admedian stripe from apical margin to near carina, a small spot a short distance from carina, another towards lateral carina (quite small in type) and a spot between lateral carina and apical margin; on elytra a rounded spot on subbasal swelling from interspace I to IV, irregular spots at side behind shoulder and in middle, and dorsally behind middle and on apical declivity. Patch below eye orange-buff, continued on to prosternum.

Frons very narrow, as in *A. saphis* sp. nov. Segments IV to VII of antenna less broadened than in *A. fenestratus*, almost linear, VIII as long as III, nearly the same in shape and length as IX but somewhat narrower, IX to XI shorter than in *A. saphis* and *A. rusticus*. Pronotum finely and sparsely punctate, not rugate, much smoother than in the allied species. Pygidium remarkably long, one-tenth longer than basally broad, subapically only one-eighth narrower than basally, apex more strongly rounded at sides than in middle.

Intercoxal process of mesosternum as narrow as in *A. saphis*. Anal sternite without tubercle, medianly longer than the two preceding segments together, apical margin strongly rounded, more so at sides than in middle. Legs slenderer than in *A. saphis* and *A. rusticus*, the femora much less swollen beyond middle, apex of foretibia bisinuate, but without tooth; midtibia with strong apical tooth; segment II of foretarsus medianly longer than it is broad across base of apical sinus.

Length 9·7 mm., width 4·7 mm.

Malay Peninsula: Larut Hills, Perak, 3,700 ft., at light, 13.ii.1932 (H. M. Pendlebury), 1 ♂, type; Ulu Liang, Pahang, 22.viii.1907, 1 ♂.

15. **Litocerus ampliatus** sp. nov.

♂♀. Recognizable by the broad prothorax being strongly conical from the middle of the lateral carina to the apex, this portion of the side being straight, and by segment VIII of the ♂-antenna being much longer than III. Near *L. laticollis* Jord. 1894.

Pale testaceous, variegated with brown, rather densely pubescent bullish grey. Rostrum longer than broad, middle of apical two-fifths flattened, middle of basal three-fifths somewhat convex from side to side, median carina though thin quite distinct from base to depression, then very thin to apical margin, flattened out and evanescent before reaching the margin, carina II less prominent, running from base to middle and then continued by a swelling which extends obliquely apicad; below eye a distinct comma-groove bordered dorsally by an oblique swelling, from the lower end of which starts carina III; this very thin and inconspicuous; margin of antennal groove somewhat expanded and continued to apex as a thin carina. Frons in ♂ a little broader than segment II of antenna, in ♀ about as broad as that segment is long. Occiput brown in middle. Antenna rufescent-brown, pale at base, proportions: from III to XI in ♂ 19, 17, 19, 20, 24, 26, 17, 17, 16, in ♀ 18, 12, 12, 12, 12, 11, 20, 16, 16.

Pronotum almost twice as broad as long (ratio 16 : 9), with deep transverse groove halfway between apex and carina, apical area strongly slanting upwards from sulcus ; buffish grey, with indications of a buffish median stripe, a brown stripe consisting of three portions bounds on each side an irregularly hexagonal median area, the main portion of the stripe slightly curved and extending from the end of the transverse sulcus to the carina, from its anterior end a streak runs obliquely to apical margin, which it reaches near middle, the posterior end of the brown stripe curves inward across the carina to base, the grey basal median spot being somewhat wider than the grey apical median interspace ; from the inner angle of the brown basal spot another brown stripe runs straight forward alongside the grey median stripe, the apical half of it more or less obsolescent ; halfway between the outer brown stripe and lateral carina a brown median spot, another spot between apex of lateral carina and apical margin, the spots connected with one another or nearly ; dorsal carina feebly convex from side to side, flexed forward to meral suture in an arc which is more strongly curved at side than above.

Scutellum grey. Elytra buffish grey, one-third broader behind base than before apical declivity, rather strongly depressed at suture behind scutellum and again from antemedian depression to apex, interspace III being subcariniform ; interspaces striped with brown, an area expanding from shoulder to shoulder, gradually narrowing to interspace II and expanding again in front of apical declivity bears fewer brown stripes than the lateral area which extends from shoulder to beyond middle and upwards about to interspace II, this lateral (dark) area blackish brown at side ; on apical declivous area the brown linear spots occupy about as much space as the grey pubescence, the lateral spots the darkest.

Pygidium one-tenth broader than long, in ♂ rounded-triangular, in ♀ subtruncate ; buffish grey, brown in middle. Sterna of thorax with dark brown patches. Legs pale rufous, knees and a broad postmedian ring on tibiae brown.

Length 5·7 mm., width 2·8 mm.

Java : Malang (Royer), one pair.

16. **Litocerus pollionis** sp. nov.

♂. Near *L. scalaris* Jord. 1895, but the black-brown median area of pronotum strongly constricted, and the irregular sutural stripe of the elytra broken up into spots. Brown, markings buffish grey. Proboscis with five carinae, median one highest, more strongly elevate at base than farther down, reaching to middle, fading away in the postmedian shallow depression, carina II incurved in basal half, then somewhat directed outward, parallel with outer margin of rostrum, its apical half vestigial, carina III almost joining cariniform margin of antennal groove ; this margin continued as a carina to apical margin of rostrum. Frons narrow, only as broad as base of antennal segment III ; occiput and posterior portion of frons with large triangular brown median area. Antenna nearly reaching to apex of elytra, pale rufous at base, segment III longest, proportions : III 20, IV 16, VIII 18, IX 15, X 12, XI 17.

Middle of pronotum brown, this area deeply constricted in antemedian transverse sulcus, both portions nearly oblong, the anterior portion one-fourth narrower than the posterior one, the latter occupying four-fifths of the width of the pronotum ; a narrow buffish grey median line broken up into four spots, the

spot behind sulcus obsolescent ; lateral area densely buffish grey, with a longitudinal abbreviated brown line which is somewhat widened anteriorly ; carina incurved in middle, slightly convex each side of middle, laterally flexed forward in an even arc, the lateral carina somewhat inclining downward, nearly straight in middle, its tip slightly turned upward.

Scutellum brown. Elytra strongly punctate-striate, with the following buffish grey markings : a large patch at shoulder, within it a brown spot at shoulder angle, a minute sutural spot behind scutellum, a small oblong spot in punctate stripe I on posterior side of subbasal swelling, near it a second spot in II, in interspace I from antemedian depression to near middle a line, almost interrupted, followed by a brown elongate-elliptical sutural spot, in stripe II a line beginning a short distance behind antemedian depression and ending in middle, where it is almost continuous with a line in I ending at beginning of apical declivity, in stripe III a minute dot, in middle of III and IV a short oblong spot each, before declivity an elliptical spot occupying interspaces II, III, and part of IV, at the side of it a smaller spot in interspace V, obliquely behind this largish double spot a dot in stripe VI, at lateral margin a spot before middle with a sublateral one obliquely above-behind it, another spot behind middle of margin, apex occupied by a largish triangular spot extending from suture to outer margin, broader than long, anteriorly excurved.

Pygidium as long as basally broad, gradually narrowed, evenly rounded at apex, buffish grey at side, as is the underside of body. Legs rufous, base and underside of femora very pale, on tibiae a diffuse subbasal ring and the apex also paler than the rest of the tibiae. Grey pubescence on upperside of tarsal segment I scattered, denser on II.

Length 5·3 mm., width 2·4 mm.

Sumatra, 1 ♂.

17. **Litocerus tagens** sp. nov.

♂♀. Near *L. infirmus* Jord. 1928, from Borneo and the Malay Pen., but eyes almost contiguous in ♂, segments IV to VII of antenna longer, the light colour much more restricted on pronotum, and the angle of the carina less rounded.

Segment IV of ♂-antenna the longest, about one-fourth longer than III, twice as long as X, proportions slightly variable, in type III 30, IV 37, VIII 26, IX 25, X 18, XI 23 : in ♀ III 19, IV 15, VIII 15, IX 18, X 16, XI 19. Pronotum for the greater part blackish brown, a median stripe pale buff, constricted in the transverse antemedian sulcus, in front of carina more than half as wide as the brown lateral area, in this area a dorsal vitta represented by a row of spots, the last of them behind carina, the first long, above end of lateral carina and behind end of transverse sulcus a spot each. Elytra buff, a large brown-black area from shoulder to apical third of margin, extending upwards to line II of punctures (type) or to I, strongly narrowing above, its anterior margin much more slanting than the posterior, both somewhat irregular, from the anterior and posterior angles of its narrow sutural portion a curved line each projects towards or across suture ; in the black area about middle two buff spots, one obliquely above the other, on apical declivous area a black patch with 5 or 6 anterior and 1 or 2 posterior projections, the one in interspace VIII reaching the large patch, and the most dorsal one being directed obliquely forward towards suture, between the two patches a brown cross, consisting of a transverse bar and a longitudinal line

in V, this line connected with the large patch or free. Pygidium a little longer than broad in ♂ (in ♂ of *L. infirmus* broader than long), as long as broad in ♀, gradually rounded-narrowed, with a brown median stripe.

Legs rufescent, basal half (or more) of femora, an antemedian ring on tibiae, and tarsal segments II to IV much paler.

Length 5·7 mm., width 2·6 mm.

Malay Peninsula: Perak (W. Doherty), 1 ♂, type, in Mus. Brit. 3 ♂♂, 1 ♀; Pahang, Fraser's Hill 4,000 ft., i.1929, and Cameron's Highlands, 4,800 ft., vi. 1923 (H. M. Pendlebury), in Mus. Kuala Lumpur.

18. **Litocerus callias dividus** subsp. nov.

♂. Differs from *L. c. callias* Jord. 1911 (Malay Pen.) in the brown markings being reduced in size. On pronotum a brown stripe each side of middle, anteriorly about as wide as the interspace between the two stripes or somewhat narrower, divided at one-third into two stripes, the dorsal one short and thin, sometimes interrupted, the outer one about half as wide as the stripe is at apical margin. On elytra all the spots separate from each other or some of them connected by thin lines: three linear spots on suture, a minute dot in interspace II in antemedian depression, in III a line (sometimes interrupted) from near basal margin on to subbasal swelling, here joined by a thin line in IV; a thin line above shoulder in type (absent from the two paratypes), a spot on shoulder angle drawn out into a line which, in the paratypes, joins a median patch; this patch extends from mid-IV to mid-VII, behind it in VIII a small spot joined to the patch in the paratypes; a larger patch on apical declivous area widened and sinuous in front, triangular apart from its irregularities; at outer margin three spots.

Borneo: Sarawak, Limbang R., iii.1910, 1 ♂ (type) received from the Sarawak Museum, and Sarawak (Wallace), 1 ♂ in Mus. Brit. and another in the Hope Dept., Oxford.

19. **Tropideres scitus** sp. nov.

♀. In size and shape similar to *T. japonicus* Roel. 1879, but elytra with well-defined black-brown transverse markings.

Rufescent-brown, pubescence luteous grey above, whitish grey on rostrum and beneath. Frons slightly wider than in *T. japonicus* ♀, posteriorly at eye with an elongate black-brown spot continuous with the brown occiput. Antenna entirely pale testaceous. Disc of pronotum dark brown, shaded with drab pubescence, sides and a broad median stripe luteous grey, the stripe expanded in antemedian depression; carina laterally more abruptly curved forward and lateral branch shorter than in *T. japonicus*.

Scutellum white. Elytra with the subbasal callosity distinctly higher than in *T. japonicus*, bearing a short transverse spot, shoulder angle the same colour, a short distance behind antemedian depression a transverse patch from line II of punctures to VI, broader than long, variable in size, the patch continued towards suture as well as towards outer margin by some small spots or indications of spots, which give the patch the appearance of sending out two projections sidewards and two towards the patch on the other elytrum; behind middle a transverse band from near suture obliquely backwards to outer margin; on apical declivous area a thin transverse spot and one or two minute dots representing another transverse band; all these markings black-brown; inter-

space III somewhat convex from antemedian depression backwards, but not tuberculiform. Pygidium entirely grey. Tarsal segment II and apex of tibiae brown as in *T. japonicus*.

Burma: Ruby Mines (W. Doherty), 3 ♀♀ in Mus. Brit.

20. **Uncifer collaris** sp. nov.

♂. Rufescent-brown, upperside of head and rostrum and the entire underside densely pubescent-grey, pronotum and elytra spotted and banded with grey, rufous-brown and blackish brown.

Rostrum nearly twice as broad as long (32 : 18), widest at basal third, apical margin excised in middle. Frons convex, narrower than the rostrum is long (ratio 14 : 18). Antenna reaching to middle of elytra, brown, base pale rufous, length of segments III 9, IV 8, V 6, VI to VII 7, IX 10, X 9, XI 11, VIII flattened like the club, but much narrower, VII also flattened, but less so than VIII, III the thinnest.

Pronotum granulose, somewhat depressed before middle and along carina, the centre therefore convex, a little less than the anterior half rufous, covered with a grey pubescence, which is densest in the depression, apical margin dark brown each side of middle, from this grey collar to base the pronotum blackish brown except a grey median stripe from scutellum across carina, tapering in front and not reaching grey apical border, and a grey basal lateral patch extending forward sublaterally, opposite this projection another, from apical border backwards, on upperside of this anterior grey projection a brown projection into the grey border; dorsal carina distant from base, shallowly concave medianly, and then more strongly convex, its hooked end almost touching outer surface of shoulder, the angle of the pronotum projecting farther laterad than the shoulder.

Scutellum almost semicircular, grey. Elytra strongly punctate-striate, rather coarsely granulose, spotted with grey, brown, and blackish brown, almost chequered, the more conspicuous blackish brown spots are: a patch on subbasal callosity reaching base and enclosing a short grey basal dash in interspace III, a spot on shoulder angle, a larger rhombiform spot behind shoulder from margin to interspace VIII, an elongate-triangular sutural spot in middle, widest behind, and nearly the whole apical fourth except suture and two grey spots, in between these larger patches the grey pubescence broken up by spots and short lines. Pygidium with dispersed grey pubescence, as long as broad, strongly narrowed to apex, which is truncate-rotundate, the sides straight, but oblique.

Legs rufous, tarsi and apex of tibiae slightly darker than femora.

Length 2·7 mm., width 1·35 mm.

Malay Peninsula: Pahang, Frazer's Hill, 4,200 ft., July 1931 (H. M. Pendlebury), 1 ♂.

21. **Nessiara gibba** sp. nov.

♂. Near *N. tessellatus* Eyd. & Soul. 1839, but subbasal swelling of elytrum a high ridge.

Black, spotted with tawny-ochraceous; on pronotum an antemedian spot each side of middle; scutellum, a short line behind subbasal tubercle on each elytrum and a few small dots in median half of sutural and third interspaces white, vertical basal margin of elytrum whitish midway between scutellum and shoulder.

Legs black, femora with some greyish ochraceous dots, middle of tibiae and the entire tarsi pale rufous, with grey pubescence.

Rostrum more coarsely punctate than in *N. tessellatus*; club of antenna broader, segment XI broader than long, slightly shorter than in *N. tessellatus*.

Length 11 mm.

North Borneo: Bettotan, near Sandakan, 17.viii.1927 (C. B. Kloss & H. M. Pendlebury), 1 ♂.

22. **Nessiara moluccarum** sp. nov.

♂. Close to *N. optica* Jord. 1894, described from Sumatra; broader, black spots of pronotum larger; black-brown median sutural patch placed in front of the grey spot of each elytrum larger than the black-brown markings placed behind the grey spot, the two black lateral spots of elytrum between shoulder and middle larger than in *N. optica*, the grey spot in between them correspondingly smaller and rounded; pygidium broader than in *N. optica*, very slightly broader than long in *N. moluccarum* and a little longer than broad in *N. optica* (♂♂).

Length of type 10 mm., width 5 mm.

Ceram: Piroe, ii.1900 (F. Muir), 1 ♂, type: Amboina (F. Muir), 1 ♂.—— The Amboina specimen is much smaller (length 8·2 mm., width 4·0 mm.), the median carina of the underside of the rostrum is less elevate, and the pygidium broader than in type.

N. optica Jord. 1894 (Sumatra), *N. robusta* Jord. 1895 (Luzon), *N. difficilis* Jord. 1915 (Java), and *N. moluccarum* probably are geographical forms of one species. In all four segment XI of the antenna is short, being little longer than broad, the elytra are depressed at suture from before middle to apical declivity, interspace III not elevate.

23. **Oxyderes cyrtus modicus** sp. nov.

♂. Differs from *O. c. cyrtus* Jord. 1912, from Java (a single ♀ known to me), in the rostrum being a little shorter (ratio between length and width in *O. c. cyrtus* 1 : 1·58, in *O. c. modicus* 1 : 1·34), the lateral angle of the pronotal carina more acute, the black spots in the alternate interspaces of the elytra less elevate and less rounded, and many of them longer than broad, and in the grey rings of the femora and tibiae being narrower and less conspicuous.

Malay Peninsula: Selangor, Gomback valley, 16.x.1921 (H. M. Pendlebury), 1 ♂.

24. **Oxyderes nasutus** sp. nov.

♀. Like *O. frenatus* Jord. 1897, but the rostrum longer (ratio of length and width in *O. nasutus* 1 : 1·33, in *O. frenatus* 1 : 1·70); carina of rostrum prominent, continued farther back than in *O. frenatus*; club of antenna narrower; eye shorter.

Malay Peninsula: Perak (W. Doherty), 1 ♀.——In Mus. Brit. a ♂ from Perak (Doherty) which shows the same differences.

25. **Oxyderes homalis** sp. nov.

♀. Like *O. f. frenatus* Jord. 1897, differing only in the rostrum being shorter, twice as broad as long (ratio 14 : 7), and its median carina obsolescent, indicated at base as a thin longitudinal wrinkle and at apex as a slight swelling.

Sumatra (J. Gérard), 1 ♀.

26. **Apatenia viduata pulla** subsp. nov.

♂. Broader than *A. v. viduata* Pasc. 1859. Median carina of rostrum shorter, extending neither on to frons nor to the convex apical area. Frons strongly rugate-plicate longitudinally. Pronotum broader (length 10, width 12·3), somewhat more strongly punctate. Pygidium (♂) a little broader than long.

Length 5·7 to 8·5 mm.; type, length 8·5, width 4·0 mm.

South Celebes: Tjamba, viii–ix.1891, and Macassar, vi.1896 (W. Doherty), 2 ♂♂, 2 ♀♀.

27. **Apatenia viduata surda** subsp. nov.

♂. Like the preceding subspecies, but carina of rostrum still shorter, terminating on a level with the thin transverse swelling which extends from the edge of the antennal groove mesad. Pronotum and elytra much shaded with clay-colour. Pygidium (♂) a little longer than broad.

Length 9 mm., width 4·3 mm.

Batjan (W. Doherty), 1 ♂.

28. **Apatenia madida** sp. nov.

♂. Distinguished from *A. viduata* by the short rostrum, broad frons, and the absence of the black postmedian patch of the elytra.

Upperside clay-colour, dotted with brownish black. Rostrum more than one-half broader than long, a little more than the basal half depressed, apical area convex, middle carina confined to the depression, not ascending frons, which is anteriorly depressed and one-half as wide as the rostrum is long, proportions: width of frons 1·0, width of rostrum 2·5, length of rostrum 1·5; median apical lobe of rostrum prominent. Frons and occiput densely rugate-carinulate. Club of antenna distinctly decreasing in width from IX to XI.

Pronotum as in *A. v. surda*, basal median spot somewhat larger. Suture and alternate interspaces of elytra pustulated with black. Pygidium one-fourth broader than long, its basal transverse sulcus deep; the two lobes of hypopygidium shorter and farther apart than in *A. viduata*.

Length 8·3 mm., width 7·0 mm.

Batjan (W. Doherty), 1 ♂.

29. **Apatenia grumosa** sp. nov.

♀. Brownish black, pubescence drab. Rostrum coarsely punctate, twice as broad as long, basal half medianly depressed, in middle of rostrum the depression extended sidewards to margin of antennal groove, in the depression a longitudinal median swelling, subcariniform, not prolonged on to the frons. As on rostrum a few of the punctures on frons confluent; frons almost exactly as wide as the rostrum is long (♀), anteriorly concave, with an indication of a median longitudinal swelling, which does not extend down to rostrum, and with a creamy median spot. On occiput a black patch with three projections, one median, the others directed towards eyes, which they nearly reach. Median groove on underside of rostrum shallow anteriorly, absent posteriorly. Segments I and II of antenna rufous.

Pronotum punctate, transversely depressed before middle, uneven, nearly one-fourth broader than long; a creamy median stripe from scutellum to trans-

verse depression, pointed anteriorly and continued by a narrow subapical streak; the portion behind carina longer than broad, seven longitudinal black markings at apex, the three dorsal ones subapically connected with each other; from transverse carina to depression five black markings, the median one bearing the creamy spot, the lateral ones including some drab pubescence, the intermediate ones narrow; base behind carina black, with a buffish spot nearer to angle than to middle and continued across carina; angle of carina a little larger than 90°, longitudinal carinula forming with dorsal carina an angle slightly smaller than 90°.

Scutellum creamy. Elytra one-third longer than broad, coarsely punctate-striate, pustulated with brown-black, at sides a large black patch from basal fourth of margin to behind middle, basal callosity high, rounded, another high rounded tubercle behind middle in interspace III, and before apical declivity a transverse oblique row of three tubercles, before apical margin of each elytrum a black transverse comma. Pygidium about one-tenth broader than long, convex subapically, clayish, with an abbreviated narrow brown median stripe and a short lateral one.

Prosternum pitted with large punctures, which are dispersed on basal lateral area; meso-metasternites likewise punctate, convex median area of metasternite almost impunctate. Abdomen punctate, more densely so on median area of segment I, sides almost impunctate apart from a basal row and a few additional punctures, at side a row of luteous spots set off by black. Legs rufescent-black, femora with a large blackish median patch or half-ring, a subbasal ring on tibiae and a narrow apical one, as well as the extreme bases of the tarsal segments and apex of I grey.

Length 6·3 mm., width 3·1 mm.

Boeroe: Ilat (W. Doherty), 1 ♀.

30. **Apatenia festiva** sp. nov.

♀. Nearest to *A. sagax* Jord. 1929, from Boeroe, but rostrum much longer, with the median carina strongly developed, and each elytrum with two high, pointed, subapical tubercles.

Rufescent-brown, pubescence pale chocolate variegated with lighter and darker shades. Rostrum a little more than one-half broader than long (ratio 1·6 : 1·0), coarsely punctate, median carina high, reaching to apical margin and disappearing on anterior portion of frons, from eye an oblique cariniform swelling, distinct to middle, then gradually fading away, not reaching apical margin; between the two carinae the rostrum deeply impressed; a small depression midway between eye and apical margin; from lateral dorsal apical angle of rostrum a carina runs basad to about one-half, parallel with margin of antennal groove; apical margin bisinuate, median lobe broad and projecting. Median channel on underside of rostrum distinct, extending to near transversely wrinkled neck. Frons half as wide as the rostrum, longitudinally rugate-plicate, crossed by a creamy anguliform line extending from eye to eye and projected a little forward on median carina. Occiput with large chocolate triangle of which the tip is rounded off, this patch narrowly bordered with creamy pubescence and divided by a creamy median line. Antenna brownish rufous, club less flattened than is usual in this genus (the nearest approach being found in *A. sagax*), IX and X almost alike, X being very slightly smaller, both rounded subapically and truncate, XI slightly smaller than X, widest beyond middle, nearly as

strongly narrowed basad as IX and X, apically gradually narrowed, almost elongate-lozenge-shaped.

Pronotum and elytra taken as a whole flattened, but very uneven; pronotum almost exactly twice as broad as long (2·1 : 1·0), constricted before angle of carina; lateral carina high, extending beyond middle, curved in dorsal aspect; pronotum about one-eighth narrower at end of lateral carina than at subbasal angle, dorsal surface depressed before middle, the depression deepest each side of median line and fading away in front of end of lateral carina; median line raised in the depression; in area between dorsal and lateral carinae a large, shallow, rounded depression; a bell-shaped central patch reaches from near apical margin to base, occupying three-fourths of the base, narrowing frontad, consisting of various markings: a velvety black subapical arch divided by a creamy grey longitudinal line and thinly bordered with grey in front and behind, behind this arch a russet-chocolate arch, laterally expanding a little beyond the ends of the black arch and resting on a creamy grey transverse line situated at four-fifths from apex to carina, this line does not quite reach the sides of the patch; along posterior side of line a dark shade, which turns laterally at right angles towards carina; a large creamy grey patch before scutellum, rounded behind, expanding at carina and extending across it, forming a diffuse median stripe which joins the transverse line; rest of the patch partly russet, particularly in the depressions; dorsal carina taken as a whole straight, but slightly wavy and medianly curved backwards, lateral angle 90°, with the tip rounded off, longitudinal carinula almost a straight continuation of the lateral carina, horizontal in lateral aspect.

Scutellum creamy grey. Elytra one-half longer than broad, with lighter and darker shades, some of which have an oblique position, mainly backwards-dorsad; sides parallel from shoulder to three-fourths; between shoulder and middle a diffuse blackish brown limbal patch, dorsal surface except suture very uneven with numerous tubercles, three of which are particularly high, namely a subbasal one with two rounded tops (in interspaces III and IV), and two subapical ones, both the latter pointed and turned anad, one of them in interspace III, the other, somewhat higher, close to outer margin. Pygidium one-fifth broader than long, evenly rounded, clayish at base and apex.

Underside of thorax and middle of abdomen coarsely punctate, the sclerites more or less outlined with greyish clay-colour, a broad stripe, narrowest in front, from apical margin of prosternum to base of metepisternum cream-colour, thickly pubescent, limited above by the lateral carina of prothorax. Legs more or less pale rufous, middle of femora brown, base and apex pubescent whitish grey, tibiae whitish grey at base and extreme apex, otherwise brown, midtibia on outside blackish brown, hindtibia broadened, its apical two-thirds brownish black, as is the upperside of hindtarsal segment I except extreme tip, segments II to IV in all tarsi paler than I.

Length 6·7 mm., width 3·0 mm.

Mandated New Guinea: Bolan Mts., 1 ♀.

31. **Hypseus dilectus** sp. nov.

♀. Similar to *H. fascicularis* Pasc. 1860, but the club of the antenna and the colouring different, and the pygidium densely yellowish cream-colour.

Pale rufescent and blackish brown, variegated. Rostrum not quite twice

as broad as long (ratio 1·8 : 1·0), with short median cariniform swelling, proximally to which there is a depression that extends on to frons and is laterally bounded by a feeble swelling running from inner margin of eye obliquely forward ; apical margin of rostrum somewhat rounded, slightly bisinuate. Frons two-fifths the width of the rostrum, rugate-plicate, with pale median spot and narrow pale border to anterior margin of eyes, otherwise like occiput darker brown than rostrum. Segments I, II, VII, and VIII of antenna pale testaceous, the other segments of shaft rufescent-brown ; club flat, deeper brown, its segments decreasing in length and width. IX and X widest at apex, rounded-widened from close to base, apex truncate, XI ovate, with pale apex.

Pronotum punctate, transversely depressed before middle and before carina, with a transverse row of slight swellings in between ; apical dorsal median area ochreous, with an oblique, somewhat S-shaped, brown-black mark each side, from scutellum to median swelling a creamy white stripe, constricted before carina, rounded at both ends, at each side of this stripe a large square black-brown patch from which a short spur extends forward along white line into the ochreous patch ; halfway between this patch and lateral carina a black-brown stripe stopping before middle at an ochreous dot surrounded with black-brown ; dorsal carina feebly convex from side to side, medianly slightly incurved, lateral angle very little smaller than 90°, longitudinal carinula more strongly slanting than in *H. fascicularis*, forming equal angles with the dorsal and lateral carinae.

Scutellum creamy white. Elytra blackish brown, an irregular stripe from shoulder to subapical tubercle ochreous, interrupted by the two posterior tubercles, subbasal swelling the same colour, which extends to base, interspaces V, VII, and IX with black pustules, in III behind middle and at beginning of apical declivity a rounded black tubercle, before apical margin a transverse tubercle or ridge, between the black pustules some grey dots. Pygidium entirely ochreous.

Abdominal segment I ochreous, II to V with brown lateral spot. Femora and tibiae dark brown, on femora the base, a postmedian ring or spot and the apex pale testaceous, on tibiae an antemedian and a subapical ring and more or less also the base pale testaceous, as are the tarsi (of which segment I bears scattered dark hairs).

Length 4·7 mm., width 2·0 mm.

Ceylon : Bojuwantalura, 4,900–5,200 ft., 28.ii–12.iii.1882, type, and Dikoya, 3,800–4,200 ft., 6.xii.1881–16.ii.1882 ; 2 ♀♀ in Mus. Brit. ex coll. G. Lewis.

32. **Phaulimia ofella** sp. nov.

♂. Near *Ph. priva* Jord. 1895, but broader, blackish brown, the pronotum more coarsely granulate than in *Ph. priva* and the frons a little wider. The luteous grey anguliform mark on occiput not quite 90°. On pronotum the grey markings more definite and more conspicuous on the dark ground, and those in anterior half larger, the lateral ones separate, not merged together as in *Ph. priva* ; dorsal carina somewhat concave in middle, then convex and towards angle again slightly concave, lateral angle 90°, with the tip strongly rounded. Elytra with numerous very small grey dots in the rows of punctures, here and there a dot in the interspaces, an oblong postmedian spot in third interspace conspicuous, a smaller one at base of this interspace.

Underside grey, abdomen medianly rufescent, tarsi paler rufous at apex.

Length 4 mm., width 2 mm.

North Borneo: Bettotan, near Sandakan, 19.vii.1927 (C. B. Kloss and H. M. Pendlebury), 1 ♂.

Note.—In NOV. ZOOL. xxxiv. p. 121 (1928) I gave a short definition of *Ulorhinus* Sharpe 1891 in which line 9 from above should read "Proboscis about twice as broad as long," instead of "twice as long as broad."

33. **Sintor peribalius** sp. nov.

♀. Near *S. philippinensis* Jord. 1895, shorter, rostrum much shorter, with the carinae obsolete in basal half, club of antenna narrower and loose, segment X being triangular and longer than broad, and the lateral arm of the pronotal carina shorter.

Rufescent-brown or (immature) rufous, markings of upperside luteous or white, pubescence of underside silky grey. Rostrum one-tenth broader at apex than long (♀; in ♂ probably a little longer than in ♀), almost cylindrical at base, median carina represented by a low swelling from near apical margin to middle, base slightly impressed, the impression continued on to frons; from margin of antennal groove to dorsal apical angle of rostrum a carina, but no carina from antennal groove to eye. On head a thin median stripe and a border to the eyes, uniting anteriorly, the upperside of the rostrum nearly entirely luteous. Segment II of antenna as long as III, IV like III, V to VIII decreasing in length, VIII being three-fourths III, segments of club longer than broad, IX one-tenth longer than III, X one-tenth shorter than III, both gradually widened from base, triangular, XI elongate-elliptical, one-tenth longer than IX.

Pronotum convex, depressed along carina, one-sixth broader than long, closely studded with shallow punctures (rings bearing each a hair), a thin median stripe, interrupted or anteriorly effaced, a sublateral stripe more or less interrupted before middle and behind the interruption somewhat curved sidewards (this lateral projection being a dot joined to the stripe), on each side of disc a median spot joined to the lateral stripe or isolated; carina concave, very gradually flexed forward-laterad, with a very short horizontal portion, the side of the prosternite below the lateral carina more convex than in *S. philippinensis*.

Scutellum nearly white, conspicuous. Elytra convex, somewhat flattened along suture, more strongly punctate-striate than in *S. philippinensis*, alternate interspaces each with about seven dots and elongate spots, suture for the greater part luteous or white. Pygidium quite evenly rounded, one-half broader than long, medianly convex from base to near apex.

Tarsal segment I shorter than II to IV together.

Length 3·8 to 4·5 mm.

Two subspecies:

(*a*) *S. peribalius peribalius.*

Markings of upperside luteous.

Pulo Tioman (east side of Malay Pen.): B. Sedagong, 1,000 ft., v.1926; 3 ♀♀.

(*b*) *S. peribalius leucas* subsp. nov.

♀. Markings of upperside white, lateral stripe of pronotum broken up into spots. Proboscis a little thicker, pronotum more coarsely granulose (without gloss), and elytra somewhat more convex.

North Borneo: Bettotan, near Sandakan, 19.viii.1927 (C. B. Kloss and H. M. Pendlebury), 1 ♀.

Morphocera gen. nov.

♂. Near *Ancylotropis* Motsch., eye less coarsely granulose, tooth of claw short, and tarsal segment III not enlarged.

Rostrum stout, long, cylindrical at bases, flattened and dilated at apex, without distinct carinae, apical margin truncate, with small median sinus, and the lateral angle projecting sideways on to the base of the mandible. Labium divided nearly down to the palpi; labiophore glossy, truncate-emarginate, with the lateral angle acute. Antenna close to apex, segments III to V thicker than the others, strongly claviform, VI to VIII circular in transverse section, thin, widened at apex, but much less enlarged than the preceding ones, club flattened, wider than VIII, but narrower than V, IX conical, X shorter, XI elliptical; antennal groove rounded, slightly elliptical. Eye lateral a little longer than broad. Carina of pronotum distant from base, gradually flexed forward at side, not reaching middle; longitudinal and transverse carinulae vestigial, basal edge cariniform, a little projecting sidewards beyond the flank of the prosternite. Elytra with the subbasal swelling very faint, basal margin incurved from shoulder to shoulder. Pygidium semicircular. Mesosternal process gradually narrowing, very much narrower than coxa. Foretibia (♂) compressed, about as broad as forefemur, much broader than mid- and hind-tibiae.——Genotype: *M. pendleburyi* sp. nov.

34. **Morphocera pendleburyi** sp. nov.

♂. Brownish black, upperside densely irrorated with grey, the scale-hairs assuming a metallic green tint when looked at obliquely from their bases. Rostrum one-half longer than broad at its widest point, which is subapical, coarsely punctate-reticulate, with a vestige of a thin median carina, underside coarsely punctate, except labiophore, at each side about halfway between eye and buccal sinus a longitudinal groove. Head likewise coarsely reticulate, some of the meshes open, some of the ridges forming longitudinal carinulae; frons anteriorly one-tenth wider than the middle of the proboscis. Eye elliptical, one-third longer than broad. Antenna not quite reaching to apex of elytra, rufescent at base, segment V longest, widest behind middle, III and IV widest nearer apex, lengths of segments I 11, II 15, III 28, IV 27, V 34, VI 28, VII 22, VIII 19, IX 16, X 10, XI 15.

Prothorax one-tenth longer than broad, subconical, widest at basal third, evenly convex, highest in centre, slightly depressed along carina, coarsely punctate-reticulate, somewhat rugose and granulose, with numerous brown-black stiff hairs in between the speckles of grey pubescence; carina in middle just in front of basal seventh of pronotum, dorsally straight, laterally gradually flexed forward, the lateral arm oblique, not quite reaching to middle.

Scutellum small. Elytra cylindrical, not quite twice as long as broad (11 : 6), densely granulate, punctate-striate, the stripes rather shallow, but most of the punctures deep. Pygidium with narrow shallow longitudinal impression each side of middle line.

Prosternum convex, densely and coarsely punctate; rest of underside more granulate-coriaceous. Knees and tarsi rufescent, more densely pubescent-grey than middle of tibiae. Tarsi shorter than tibiae, segment I shorter than II to IV together.

Length 5 mm.

Malay Pen.: Frazer's Hill, Pahang, 4,200 ft. (H. M. Pendlebury). 1 ♂.

35. **Litotropis icon** sp. nov.

♀. Blackish brown, elytra densely grey mixed with ochraceous, bearing a large lateral blackish brown patch. Rostrum sparsely irrorated with grey and ochraceous scale-hairs, one-half broader than long, with a shallow impression from middle to base, puncturation coarse and very dense, from inner margin of eye forward a cariniform wrinkle. Head with about a dozen longitudinal carinulae, variable, not quite regular. Antenna not quite reaching base of prothorax, rufescent, segment I shorter than II, II to VIII decreasing, club flattened, IX as long as III, triangular, a very little longer than broad, X broader than long, trapeziform, XI elliptical, but truncate at base, one-fourth longer than IX. Pronotum sparsely irrorated with grey, in middle of apical margin a small ochraceous cordiform patch bearing a white median line, before middle a transverse row of four small dots, the middle two or all four white, behind them indications of other dots; one-fourth broader than long, widest at base, the side slightly incurved before angle and convex in middle, very densely punctate-reticulate, the meshes larger in centre of disc than at sides, in posterior half some irregular transverse ridges variable in number and length; disc convex from side to side, without longitudinal depression.

Scutellum broader than long, white. Elytra three-fifths longer than broad, convex, not depressed along suture, subbasal swelling more or less distinct, lines of punctures feebly impressed, a spot on subbasal swelling and another on shoulder blackish brown like lateral area, this area extending from shoulder to apical third, reaching dorsal to fourth line of punctures. Pygidium semicircular.

Length: 6 to 7 mm.

Borneo: Baram, x.1910, 1 ♀, type; Kuching, v.1900, 1 ♀; both received from the Sarawak Museum.

36. **Caccorhinus castus** sp. nov.

♂. Black, above and below evenly pubescent grey-white; at each side of scutellum a spot, four-fifths mm. long, longer than broad, posteriorly rounded and slightly dilated, in middle of elytrum a rounded dot (diameter about three-fifths mm.), a smaller one laterally before middle and a still smaller one on shoulder, all black. Antenna pale rufous, club black, segment IX much longer than III, lengths of IX to XI 18, 14, 21, width of IX 8½, XI 9. Pygidium pale rufous, one-half broader than long, subtruncate, rather strongly convex each side at base, the basal transverse groove deep. Legs pale rufous, knees, tip of tibiae, and the entire tarsi black.

Length: 7·3 mm.

Malay Peninsula: Ketah, near Jitra, Catchment Area, 11th April 1928 (H. M. Pendlebury), 1 ♂.

37. **Caccorhinus modicus** sp. nov.

♂. Narrower than *C. castus* sp. nov., pubescence of upperside less dense, luteous grey, the blackish derm shining through here and there. Club of antenna broader, length of IX 12, X 10, XI 18, width of IX 8, X 9, XI 9·5. Pronotum more flattened in middle, shorter (ratio of length and width 14 : 17), derm more coarsely sculptured. The two black basal spots on elytra confluent behind scutellum, a trilobate patch being formed, the median lobe on suture short and narrow ; a dorsal median spot and a lateral antemedian one. Luteous velvety median spot on metasternum quite small, elliptical. Legs darker brown than in *C. castus*. Knees and apices of tibiae more broadly black, segment I of tarsi grey except at extreme base and at apex.

Length : 7 mm., width 2·7 mm.

Tonkin : Hoa Bingh, 1 ♂.

38. **Basitropis operta** sp. nov.

♂♀. Nearest to *B. tersa* Jord. 1926 ; as in that species the rostrum with a median carina from apex on to frons, the club of the antenna constricted in the joints, and the legs unicolorous (apart from the slightly darkened knees). Distinguished by the antennal club being broader (but not as broad as in *B. persimilis* Jord. 1916), VI to VIII hardly at all increasing in width, in ♂ VIII nearly twice as long as broad (8 : 5), half the width of IX, club three times as long as broad, IX 9, X 8, XI 13, width of X 10 ; in ♀ VIII as in ♂, club less than one-tenth shorter ; in both sexes X one-ninth broader than IX and XI. Frons in ♂ half as broad as rostrum, in ♀ very little broader than in ♂.

Pronotum punctate, interspaces larger than the punctures and flat. Pronotum and elytra irregularly marmorated with buffish grey, this pubescence occupying about as much space as the brown ground-colour, a broadish submedian area from side to side almost entirely brown. Pygidium of ♂ smooth, with dispersed punctures, convex, less than one-tenth broader than long, gradually narrowed, apex evenly rounded ; in ♀ much broader than long (10 : 7), subtruncate, with the angles broadly rounded.

Java : G. Slamat, iv.1917 (Drescher), 3 ♂♂ (type in Mus. Amsterdam) ; Malang, 1 ♀ ; Tengger Mts., 4,000 ft. (Fruhstorfer), 1 ♀.

39. **Basitropis blanda** sp. nov.

♀. Likewise near *B. tersa*, but the frons narrower, and the club of the antenna broader. Rostrum more coarsely rugate-punctate ; antemedian knot of carina with the lateral extension directed obliquely backwards. Frons only two-fifths the width of the rostrum. Occiput brown, border of eye luteous, as broad as segment IV of antenna is long. Antennal segments V to VIII very distinctly increasing in width, VIII one-ninth broader than long, club a little over twice as long as broad (25 : 11), more compact than in the previous species, IX and X much broader than long, X being nearly twice as broad as long, XI one-tenth longer than broad.

Pronotum punctate as in *B. operta* sp. nov., sides less rounded than in that species ; with three somewhat irregular luteous stripes, above the lateral one a median spot attached to the stripe and farther back an isolated minute dot.

Elytra nearly twice as long as broad (20 : 11), more extended brown than buff, the buff pubescence forming a large basal patch from lateral margin to near suture, leaving shoulder angle and basal margin brown, a postmedian band, oblique on each elytrum, more forward dorsally than laterally, interrupted at suture, a transverse subapical band leaving sutural angle brown ; in between these luteous markings, which are somewhat irregular and probably variable, some small luteous spots. Pygidium semicircular, convex behind basal median groove. Legs and underside of body without spots, knees brownish.

Length : 5·5 mm., width 2·2 mm.

Philippines : Imugan, Luzon, 1 ♀.

40. **Anthribus vandykei** sp. nov.

♂♀. Similar to *A. fasciatus* Forster 1773. Much larger, rostrum medianly impressed, this shallow impression continued across frons to occiput. Pronotum likewise with a median depression from near apex to near base, side of pronotum more strongly dilated in middle than in *A. fasciatus*, straight from this widened portion to base, angle a little larger than 90°, much more strongly rounded than in *A. fasciatus*, dorsal carina medianly less concave. Scutellum much larger. Alternate interspaces of elytra more strongly elevate, on the whole more conspicuously brick-red than the flat interspaces, dorsal black spots from basal fifth backward all short. Pygidium as in *A. fasciatus* coarsely punctate-reticulate, brick-red like underside of abdomen. Legs as in *A. fasciatus*, tibiae somewhat wider.

Length : 5 to 6 mm.

China : Nanking, 3.v.1923 (E. C. Van Dyke), several specimens bred from a large Kermes found on Oak ; type in coll. Van Dyke, paratype at Tring.

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